LNE Electric

Safety Program

Prepared by:
LNE Electric

in association with:
U.S. Compliance Systems, Inc.

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Table of Contents

Policy Statements 10
- Coronavirus Disease 2019 Policy Statement 11
- New Hire Safety Orientation Policy Statement 16
- Behavior Based Safety Policy Statement 17
- Drugs, Alcohol and Other Prohibited Behaviors Policy Statement 20
- Environmental & Social Responsibility Policy Statement 23
- Harassment and Discrimination Policy Statement 25
- Injury & Illness Prevention Policy Statement 27
- Medical Treatment & Return to Work 28
- Performance Evaluation Process & Recognition Policy Statement 30
- Stop Work Authority and Workers' Right to Refuse Dangerous Work Policy Statement 31
- Supervisor Regulatory Training Policy Statement 33
- Supervisors Safety Orientation Policy Statement 34

General Policies & Procedures 35
- Safety Program Overview 36
- Accident/Injury Prevention 37
- Company Personnel 38
  - Safety Director 38
  - Safety Program Administrator 38
  - Employee Involvement 39
  - Supervisor Responsibilities 39
- Hazard Assessment 40
- Job Hazard Analysis 41
- Hazard Identification & Risk Assessment 42
- Sample Individual Task Worksheet 43
- Training 46
- Safe Office Practices 47
- Safety Meetings 49
- Employee Evaluation 50
- Working Alone 51
- Short Service Employees 53
- Subcontractor Management Plan (SMP) 54
- Emergency Action Plan 57
- Fire Prevention Plan 61
- First Aid & First Aid Kits 63
- Housekeeping 69
- Sanitation 70
- Manual Lifting Procedures & Ergonomics 71
- Slips, Trips, and Falls 74
- Drugs, Alcohol, and Other Prohibited Behaviors 75
- Postings 76
- Incident Investigation and Reporting 77
- Recordkeeping: Injuries & Illnesses 80
- Access to Employee Medical Records & Exposure Records 84
- Disciplinary Plan 87

Site/Job Specific Policies and Procedures 89
- Abrasive Wheels 90
- Aerial Lifts 91
- Aerial Lifts & Live-Line Bare-Hand work 92
- Combustible & Flammable Liquid Handling 94
- Company Vehicles 95

Compressed Air 96
Compressed Gas Cylinders 97
Delivery Crane Trucks 100
Disposable Respirators 102
Electric & Distribution Lines 104
Electrical Work - Workplace Safety 109
Electrical Work - Arc Flash Safety 121
Excavating, Trenching, & Shoring 125
Overview 125
Training 126
Protective Systems 126
Daily Inspections 127
Fall Protection 127
Definitions 127
Specific Excavation Requirements 129
Surface Encumbrances 129
Access and Egress 130
Exposure to Vehicular Traffic 131
Exposure to Falling Loads 131
Warning Systems for Mobile Equipment 131
Hazardous Atmospheres 131
Requirements for Protective Systems 133
Protection of Employees in Excavations 133
Design of Sloping and Benching Systems 134
Design of Support, Shield, & Other Protective Systems 135
Materials and Equipment 136
Installation and Removal of Support Systems 136
Sloping and Benching Systems 136
Shield Systems 136
Soil Classification 137
General 137
Requirements 139
Acceptable Visual Tests 140
Acceptable Manual Tests 140
Sloping and Benching 141
General 141
Definitions 142
Maximum Allowable Slope 142
Actual Slope 142
Configurations 143
Timber Shoring for Trenches 148
Aluminum Hydraulic Shoring for Trenches 148
Responsibilities of Competent Person 148
Extension Cords 150
Fatigue Management 151
Flagmen - Traffic Control 153
Ground Fault Circuit Interrupters 154
Hazardous Job Site Chemical Awareness and Exposure 157
Ammonia Awareness 157
Arsenic Awareness 160
Asbestos Awareness 160
Benzene Awareness 162

Cadmium Awareness 162
Chromium (VI) Awareness 164
Crystalline Silica Awareness 164
Hydrogen Sulfide – H2S Awareness 168
Lead Hazard Awareness 169
Heavy Construction Equipment 172
Hoists 177
Ladders 178
Lighting 180
Line Breaking 181
LP - Gas Storage 182
LP - Gas Temporary Heating 183
Machine Guarding 184
Machinery 189
Material Storage 190
Mold & Mildew 191
NFPA 70E 192
Pile Driving 197
Process Safety Management 198
Radio Frequency (RF) Safety / Electromagnetic Energy (EME) 202
Rigging for Material Handling 206
Scissor-Lift Fall Protection 208
Signs & Tags 209
Silica Exposure 210
Slings 224
Stairs 225
Telecommunication Safety Procedures 226
Tools - Hand 238
Tools - Pneumatic Powered 239
Tools - Powder-Actuated 241
Ventilation 242
Welding, Cutting, & Hotwork 244
Specific Compliance Programs 249
Bloodborne Pathogens - Exposure Control Plan 250
Policy Statement 250
Definitions 251
Exposure Control Plan 253
Exposure Determination 253
Methods of Compliance 254
Exposure Control Plan Administrator 257
Designated First Aid Provider 257
Personal Protective Equipment (PPE) 257
Housekeeping 259
Hepatitis B Epidemiology 259
Risk of Exposure 260
Hepatitis B Vaccination 260
Sharps Injury Log 261
First Aid Provider Input 261
Plan Review 261
Post-Exposure Evaluation and Follow-Up 261
Recordkeeping 263
Training 264

Waste Management 265
Summary 265
Exposure Determination Form - List I 266
Exposure Determination Form - List II 267
Exposure Determination Form - List III 268
Housekeeping Schedule & Checklist 269
Hepatitis B Declination Form 270
Sharps Injury Log 271
Annual Exposure Control Plan Review 272
Exposure Incident Report 273
Confined Spaces in Construction 274
Definitions 274
General Requirements 279
Conditions Required to Use Alternate Procedures 281
Classification/Reclassification of a Space 281
Permit-Required Confined Space Program 282
Permitting Process 285
Training 287
Duties of Authorized Entrants 288
Duties of Attendants 288
Duties of Entry Supervisors 289
Rescue and Emergency Services 289
Employee Participation 291
Provision of Documents to Secretary 291
Emergency Phone Numbers 292
Confined Space/Permit Space Evaluation Survey 293
Permit-Space Information & Attendant Designation 294
Entry Roster 295
Entry Permit 296
Record of Continuous Monitoring 301
Cranes and Derricks in Construction 302
Required Actions Prior to Assembly 303
Assembly/Disassembly 304
Post-Assembly 306
Rigging 307
Inspections: 307
Wire Rope Inspection 309
Critical Lifts/Engineered Lifts 310
Safety Devices 310
Equipment Operations 311
Work Control Area 311
Equipment Modifications 312
Training 313
Refresher Training 315
Critical Power Line Safety Information 317
Fall Protection 327
Policy Statement 327
Overview 329
Duties of the Program Administrator 329
Pre-Project Planning 330
Definitions 330
Where Fall Protection is Required 333

Pre-Construction Survey 336
Fall Protection Systems 337
Fall Protection Plan 341
Accidents and Near Accidents 342
Training/Retraining 343
Fall Protection at the Job Site 344
Residential Construction 344
Fall Protection Plan 346
Changes to Fall Protection Plan 348
Safety Net Installation Certification 351
Forklifts 352
Overview 352
General Requirements 352
Hazards 353
Other Concerns 355
Operator Protection 355
Forklift Operations 356
Maintenance 356
Duties of the Forklift Program Administrator 357
Training 357
Use of Forklifts to Support Scaffold Platforms 359
Hazard Communication 360
Purpose 360
Labels and Other Forms of Warning 361
Employee Information and Training 363
Documentation of Training 364
Request for Safety Data Sheets 365
List of Hazardous Chemicals 366
Lockout/Tagout - Control of Hazardous Energy 367
Overview 367
Definitions 367
Applicability 369
Procedures for Control of Hazardous Energy 369
General Procedures 369
Device Selection Criteria for Non-Electrical Hazardous Energy 372
Control of Electrical Hazardous Energy on Fixed Equipment 373
Device Selection Criteria for Electrical Hazardous Energy 373
Re-Energizing Electrical Equipment 374
Special Considerations 375
Group Lockout and/or Tagout Procedures 375
Shift and/or Personnel Changes 375
Periodic Inspections 376
Training & Retraining 376
Energy Sources Evaluation & Control Procedures Form 378
Group Leader Documentation Form 381
Periodic Inspection Documentation Form 382
Personal Protective Equipment - General 383
Overview 383
Duties of the PPE Program Administrator 383
Hazard Assessment and PPE Selection 383
Dissemination of PPE Selection Information 384
ANSI Standards and PPE 384

Sizing and Fitting 385
Care and Maintenance of PPE 386
Training 386
Retraining 386
Eye and Face Protection 387
Head Protection 388
Hearing Protection 389
Foot Protection 390
Hand Protection 390
Respiratory Protection 391
Miscellaneous Personal Protection 391
Summary 391
Certificate of Job Site Hazard Assessment 392
Personal Protective Equipment - Hearing Conservation 393
Overview 393
Duties of the Program Administrator 394
When a Hearing Conservation Program is Required 395
Definitions 396
Noise Monitoring Procedures 397
Noise Level Monitoring 398
Monitoring Plan 398
Noise Level Monitoring Records 399
Audiometric testing program 399
Baseline Audiogram 399
Annual Audiogram 399
Audiometric Tests - Recordkeeping 400
Hearing Protectors 400
Training 402
Process of Hearing 402
Noise Induced Hearing Loss (NIHL) 403
Hearing Conservation Program Recordkeeping 404
Personal Protective Equipment - Respiratory Protection 405
Overview 405
Duties of the Program Administrator 406
Definitions 406
Respirator Selection 408
Particulate Respirator Selection 409
Service Life of Filters 410
Medical Approval for Respirator Use 410
Respirator Fit Test 412
User Seal Check 412
Hazard Communication & Emergency Procedures 413
Work Area Surveillance 413
Air Quality 413
Cleaning, Inspection, and Maintenance 414
Maintenance of Emergency/Unassigned Respirators 414
Storage of Respirators 415
Program Evaluation 415
Training 415
Dust Masks – Use of Respirators when Not Required 416
Disposable Respirators: 416
Respiratory Protection Program Evaluation Form 418

Report of Medical Examination 419
Medical Opinion for Respirator Use 421
Respirator Fit Test Summary 422
Record of Inspection 423
Prevention of Heat and Cold Stress 424
Prevention of Cold Stress 424
Provision of Water 426
Training 426
Prevention of Heat Stress 426
Provision of Water 427
Fluids 428
Provision of Shade 429
Modified work procedures 429
Training 429
Scaffolds 430
Overview 430
Scaffold Safety 430
Definitions 430
Guidelines for Scaffold Use 432
Supported Scaffolds 432
Suspended Scaffolds 434
Guidelines for the Control of Electrical Hazards 435
Guidelines for the Control of Fall Hazards 436
Special Precautions for the Prevention of Falling 436
Guidelines for the Control of Falling Objects 438
Access 439
General Versus Specific Scaffold Safety Guidelines 440
Training 440
Retraining 440
Appendix A - Training 441
Training Synopsis 442
Training Synopsis 443
Certificate of Training 448
Retraining Synopsis 449
Certificate of Retraining 452
Training Cards 453
Aerial Lift Cards 454
Blank Cards 455
Flagger Cards 456
Forklift Operator Cards 457
Rigger Cards 458
Safety Program Cards 459
Scissor Lift Cards 460
Tools-Machinery-Equipment Cards 461
Appendix B - Forms 462
Incident Investigation Form - Accident 463
Incident Investigation Form - Near-Miss 464
Incident Analysis Investigation Form 465
Certificate of Job Site Hazard Assessment 471
Designation of Competent Person(s) 472
Emergency Action Plan 473
Enforcement Documentation 477

Fire Prevention Plan 478
Job Task Safety Analysis 480
Safety Meeting Attendance Documentation 484
Scope of Work 485
Site Specific Safety Requirements 486
Stop Work Report 487
List of Hazardous Chemicals 490
Request for Safety Data Sheets 491
PPE Distribution Acknowledgement – Multiple Employee 492
PPE Distribution Acknowledgement – Single Employee 493
Regulatory Agency Inspections 494

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Policy Statements

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Coronavirus Disease 2019 Policy Statement

OSHA has determined that "most employers no longer need to take steps to protect their workers from COVID-19 exposure in any workplace, or well-defined portions of a workplace, where **all employees are fully vaccinated.** Employers should **still take steps to protect unvaccinated or otherwise at-risk workers** in their workplaces, or well-defined portions of workplaces." For more information, follow this link:

Protecting Workers: Guidance on Mitigating and Preventing the Spread of COVID-19 in the Workplace

Note: Guidance and criteria for Coronavirus Disease 2019 vary locally depending on current conditions. Check with your local health department for requirements specific to your location.

The health of our employees is of utmost importance, as they are our most valuable asset. The following policy has been implemented to protect our employees to the greatest of our ability from the spread of Coronavirus Disease 2019 (COVID-19).

COVID-19 is a respiratory disease that has spread from China to many other countries around the world, including the United States. Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal.

The following Pandemic Response Plan will be implemented, as necessary based on potential occupational exposures, in order to limit the risk to our employees. Matt Landers, our Safety Director, is responsible for implementing and administering our Plan.

Our employees will be trained in all aspects of our plan in a language they understand, and the plan will be available for review by workers and their representatives.

We will ensure that workers understand their rights to a safe and healthful work environment and their right to raise workplace safety and health concerns free of retaliation. Employees can contact Matt Landers with any questions or concerns about workplace safety and health, either directly or anonymously, without fear of discrimination or retaliation.

Prevention and Precautions

Our employees' risk of exposure will be continually assessed and evaluated. Controls to prevent exposure will be selected and implemented as appropriate, and workers will be required to use them.

These include, but are not limited to, controls such as providing appropriate personal protective equipment, hygiene, and cleaning supplies.

To help prevent COVID-19 we will:

a. Stay up to date with COVID-19 vaccinations. To find a COVID-19 vaccine location near us, we can search vaccines.gov, text your zip code to 438829, or call 1-800-232-0233

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b. Improve ventilation indoors. Adequate ventilation throughout the work environment can help to maintain a safe and healthy workplace. We will ensure that ventilation systems operate properly and provide acceptable indoor air quality for the current occupancy level for each space. If necessary, steps may be taken to optimize our heating, ventilation and air conditioning (HVAC) system, increase sources of fresh, clean air, and prevent air from blowing from one worker to another. See CDC's Ventilation in Buildings and OSHA Alert: COVID-19 Guidance on Ventilation in the Workplace for more information.
c. Recommend getting tested for COVID-19, if needed.
d. Follow recommendations for what to do if an employee has been exposed to COVID-19.
e. Advise employees to stay home if they have suspected or confirmed COVID-19.
f. Follow state and local guidance and priorities for screening and viral testing in our workplace.
g. Isolate any employee exhibiting signs and symptoms of COVID-19 at work, until they can be sent home and encouraged to seek medical attention, especially if they if they are at high risk of getting very sick.
h. When possible, offer duties to vulnerable employees to minimize their contact with customers and other workers, if the worker agrees to this.
i. Encourage employees to avoid contact with people who have suspected or confirmed COVID-19.
j. Move indoor activities outdoors when possible, especially if the COVID-19 Community Level rises.

Signs and Symptoms

Symptoms of COVID-19 typically include fever, cough, & shortness of breath. Some people infected with the virus have reported experiencing other non-respiratory symptoms such as fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea, vomiting, or diarrhea. Other people, referred to as *asymptomatic cases*, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 10 days after exposure. It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it & then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads. The virus is thought to spread mainly from person-to-person.

Face coverings will be provided to employees at no cost, & employees will be instructed in their proper use.

Face coverings should be made of at least two layers of a tightly woven breathable fabric, such as cotton, & should not have exhalation valves or vents. They should fit snugly over the nose, mouth, & chin with no large gaps on the outside of the face.

Procedures for a Confirmed Case

If an employee is confirmed to have COVID-19, fellow employees will be informed of their possible exposure to COVID-19 in the workplace, but confidentiality will be maintained as required by the Americans with Disabilities Act (ADA). Employees exposed to a co-worker with confirmed COVID-19 will be referred to CDC guidance for how to conduct a **risk assessment** of their potential exposure & **guarantine guidelines**.

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Communication/Notification Procedure

Important COVID-19 information will be communicated to our employees by small safety meetings, email, text, and/or telephone.

a. A suspected employee illness will be communicated internally by the most effective, safe means possible using emails and/or phone messages.
b. As the event evolves, we will communicate any necessary changes with our employees through workplace postings, emails, and/or phone messages.
c. We will provide information on workforce readiness and precautionary measures for personnel reporting to 3rd party sites and projects via email and phone messages.

Team Member Hygiene

Frequent and thorough hand washing will be promoted, including by providing workers, customers, and worksite visitors with a place and time to wash their hands often with soap and water (for at least 20 seconds) or to use hand sanitizer.

Note: Hand washing is preferred to using hand sanitizer.

Key times for workers to clean their hands include:

a. Before and after work shifts.
b. Before and after work breaks.
c. After blowing their nose, coughing, or sneezing.
d. After using the restroom.
e. Before and after eating or preparing food.
f. After putting on, touching, or removing PPE or face coverings.
g. After coming into contact with surfaces touched by other people.

Supplies necessary for good hygiene will be provided to the workers at no cost.

a. If soap and running water are not immediately available, alcohol-based hand rubs containing at least 60% ethanol or 70% isopropanol will be provided.
b. Disposable tissues and trash cans will be provided. Respiratory etiquette, including covering coughs and sneezes, will be required.
c. Disposable gloves may be used to supplement frequent handwashing or use of hand sanitizer; examples are for workers who are screening others for symptoms or handling commonly touched items.

Facility Hygiene and Sanitation Procedures

Regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment such as doorknobs, light switches, handles, toilets, faucets, etc., will be maintained.

a. Cleaning products with EPA-approved emerging viral pathogens claims (**click here** for a list of qualified disinfectants), diluted household bleach solutions (5 tablespoons per gallon of water), or alcohol solutions with at least 70% alcohol that are appropriate for the surface will be used.
b. Workers will be trained on the chemical hazards, manufacturer's directions (e.g., concentration, application method and contact time, PPE), ventilation, and requirements for safe use.

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Sanitation and disinfection as described above will need to happen after persons suspected/confirmed to have COVID-19 have been at the workplace. Areas visited by the ill persons will be closed off to all but those responsible for sanitation and disinfection.

a. Outside doors and windows will be opened where possible and ventilating fans will be used to increase air circulation. in the area. Cleaning and disinfection will begin at least 24 hours (or as long as possible) after appropriate ventilation.
b. Cleaning staff should sanitize and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment like tablets, touch screens, keyboards, remote controls, and anything else used by the ill persons, focusing especially on frequently touched surfaces. If needed, the space will be vacuumed with a vacuum equipped with high-efficiency particular air (HEPA) filter.

Once the area has been appropriately disinfected, it can be opened for use. Workers without close contact with the potentially infected person can return to the area immediately after disinfection. Routine cleaning and disinfection will continue as described above.

Note: If it is more than 7 days since the infected person visited or used the facility, additional cleaning and disinfection is not necessary.

Return to Work

Employees with COVID-19 who have been isolated, may stop isolation once they meet one of the below criteria:

a. If no symptoms, isolation may end after day 5.
b. If an employee had symptoms but they are improving isolation may end after day 5 if the employee is fever-free for 24 hours (without the use of fever-reducing medicine).
c. If an employee had symptoms and had a moderate illness (experienced shortness of breath or had difficulty breathing) isolation should continue through day 10.
d. If an employee had symptoms and had a severe illness (required hospitalization) isolation should continue through day 10 and consult a doctor before ending isolation.

Some workers might need to stay home and isolate longer than 5 days, as recommended by their healthcare providers:

a. A healthcare provider may recommend that a worker who had severe illness from COVID-19 (admitted to a hospital and needed oxygen) stay in isolation from 10 to 20 days after symptoms first appeared.
b. Workers who had COVID-19 or tested positive for COVID-19 and have a weakened immune system should consult with their healthcare providers for more information. Their doctors may work with infectious disease experts at the local health department to determine when they can be around others.

Note: Under the Americans with Disabilities Act, employers are permitted to require a doctor's note from workers to verify that they are healthy and able to return to work. But given potential delays in seeking treatment and demands on the healthcare system, requiring a COVID-19 test result or a healthcare provider's note for workers who are sick to validate their illness or return to work may cause significant delays affecting employers and workers alike.

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There are certain circumstances where employers may consider a COVID-19 test-based strategy. See **SARS-CoV-2 Testing Strategy: Considerations for Non-Healthcare Workplaces.**

A worker without symptoms who was diagnosed with COVID-19 can return to work only if 5 days have passed since the date of the first positive COVID-19 test and the employee wears a mask through day 10. If they ever develop symptoms, then the symptom-based or test-based strategy should be used, and the employee should start or restart isolation at day 0.

Workers should isolate if they have been exposed to COVID-19, which means:

a. They were within 6 feet of someone who has COVID-19 for a total of 15 minutes or more within a 24-hour period, starting from 2 days before illness onset (or, for asymptomatic patients, 2 days prior to test specimen collection) until the time the patient is isolated, or
b. They provided care at home to someone who is sick with COVID-19, or
c. They had direct physical contact with a person who has COVID-19 (hugged or kissed them), or
d. They shared eating or drinking utensils with a person who has COVID-19, or
e. Someone who has COVID-19 sneezed, coughed, or somehow got respiratory droplets on them.

When possible, isolated workers will be allowed to telework, or work in an area isolated from others. If those scenarios are not possible, workers will be allowed to use paid sick leave, if available, or we may consider implementing paid leave policies to reduce risk for everyone at the workplace.

Employees who have been isolated and are returning to work should wear a high-quality face mask through day 10. If the employee tests negative in two sequential tests at least 48 hours apart, they may remove their mask prior to day 10.

In all cases, we will follow the guidance of our local public health department. The decision to stop home isolation will be made in consultation with the healthcare provider & state & local health departments. Local decisions depend on local circumstances.

Work-related cases of COVID-19 illness will be recorded on our **Form 300 logs** if the following requirements are met:

a. The case is a confirmed case of COVID-19;
b. The case is work-related (as defined by 29 CFR 1904.5); and
c. The case involves one or more relevant recording criteria (set forth in 29 CFR 1904.7) (e.g., medical treatment, days away from work).

We will follow the requirements in **29 CFR 1904** when **reporting COVID-19 fatalities and hospitalizations to OSHA**.

Workplace outbreaks will be reported to health departments as required, and we will support their contact tracing efforts.

We will continue to monitor public health communications about COVID-19 recommendations by frequently checking the **OSHA** and **CDC** COVID-19 websites.

This Policy Statement will be conspicuously posted.

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Matt Landers

Safety Director

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New Hire Safety Orientation Policy Statement

Matt Landers, the safety director at LNE Electric, or a designated competent person, will ensure that all new hires are aware of the accessibility of the safety program and, through interactive discussion or practical demonstration, be assured that the new hire understands the safety policies and procedures that pertain to the actual work the new hire will perform.

Further, each new hire will read (or have explained) the contents of our employee handbook and **sign** the Employee Acknowledgement form which states:

> I have read and understand the contents of the LNE Electric Employee Handbook.
>
> I will, to the best of my ability, work in a safe manner and follow established work rules and procedures.
>
> I will ask for clarification of safety procedures of which I am not sure **prior** to performing a task.
>
> I will report to the workplace supervisor or competent person any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work.
>
> I understand that the complete safety program is located at the address below and is available for my review:
>
> 9260 Sw 146th Terr #8
>
> Beaverton, OR, 97007
>
> 9713928688

It will be explained to all new hires that safety training and safety performance is an on-going process. Depending on circumstances, training will take the form of some or all of the following: safety meetings, on-the-job instruction, formal and informal training.

Lastly, all new hires will be informed of the importance of the inspection and enforcement policies and procedures of LNE Electric.

_____

Matt Landers

Safety Director

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Behavior Based Safety Policy Statement

A common approach to safety is to develop a safety process that involves establishing safety policies and procedures, conveying those policies and procedures to employees, having supervisors check for employee safety compliance, and, if violations are found, document the violation and the corrective action, and, lastly, use some sort of disciplinary procedure to prevent a reoccurrence.

This approach is well established in most companies; however, it does not get to the root cause of accidents.

Behavior based safety, on the other hand, involves management, supervisors, and all employees actively engaged in creating an atmosphere where, together, they identify areas of safety concern, convey those concerns to all appropriate employees, get involved in risk assessment, perform job safety observations, and address near miss incidents.

The company for whom we are working has a Behavior Based Safety Program and our employees will be an integral part of it.

An advantage of behavior based safety is that conducting observations of employees' work behavior, which are an integral part of the program, provide direct, measurable information on employees' work practices identifying both safe and unsafe behaviors.

Training:

All employees, including management, will take part in behavior based safety training. While some training may take place in the classroom, most of it will be on the job during daily safety meetings.

Initial training will be given before actually performing work and refresher training will be given annually. In reality, training is continual because the practice of behavior base safety is an on-going process. Analyzing past incidents, assessment, development of lists of safe practices, drafting and revising checklists, observation, reviewing data, trend analysis, etc. are a continual non-stop process.

Training will include:

a. Program objectives and incident metrics reviewed.
b. How to conduct the observation.
c. What do behaviors mean?
d. Feedback training and role play (mentoring and coaching).
e. Being aware that they may be observed (and observing) at any times by fellow employees.

The success of behavior based safety rests in active participation from the facility operator, subcontractors, and all employees. All contractors at a facility would be part of the facility program and would receive training and/or instruction in the facility's program, procedures, and forms.

Feedback after Observation:

Because the program is designed to actually change safety behaviors and reinforce positive safety behaviors, feedback after observation is required.

Upon completion of an observation, the observer is expected to have a discussion with the observed to get feedback.

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The observer will:

a. Review the observation with the observed employee starting with positive comments which will reinforce correct safety behavior.
b. Describe and discuss what was unsafe and ask the observed employee to explain the observed unsafe behavior with open-ended questions. Re-emphasize that there are no adverse consequences to the observed employee. It is anticipated that the observed employee will learn from his mistakes and because of audit and review, these lessons will be passed on to all employees.

Benefits of good observation process:

a. Improves the safety of the observers and observed.
b. Improves hazard recognition.
c. Better feedback on the effectiveness of the safety process.
d. Increased opportunity to talk about safety.
e. Consequences of safe and at-risk behavior.

Collection of Data:

Data collected from subcontractors, individual departments, and the company as a whole will be used for comparing measurements and tracking these results by an acceptable method so that numerical and statistical comparisons may be made over time.

Types of data reviewed would include:

a. Observation completion percentage.
b. Comments per observation.
c. Feedback quality.

Using this trend analysis, an action plan can be designed.

Action Plan:

Upon completion of the trend analysis, an action plan will be developed to address unsafe behaviors. Action plans are carried out over the course of a set time period.

This action planning will include:

a. Evaluating unsafe behaviors from trend analysis and prioritizing them in relation to frequency and severity.
b. Developing an actual action plan for unsafe behaviors based on comments and feedback from data sheets.
c. Designating responsible parties for action planning and timeframes with the action plan.
d. The person responsible for our action planning and follow-up is Matt Landers
e. Ensure management support.
f. Identification of whether severe injuries are more likely to occur during routine or non-routine operations.
g. Identify time of day and days of the week injuries are most likely to occur.
h. Identify specific behaviors on specific types of work.

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Within the data collection process arises the ability to share information company-wide should it be appropriate. Near-miss incidents, first aid cases, injuries, etc. can be shared throughout the whole company because unsafe behaviors that lead to incidents and injuries are the same for similar processes regardless of location.

Follow-up on the actions plan is necessary to ensure the closure of all actions listed with the plan.

The person responsible for closing out our action plan is Matt Landers

Short term goals will be one month or less. Long term goals will be over a month.

The frequency for review and archiving will be determined by the company for whom we are working.

Recognition:

To encourage active employee participation in this program, a key ingredient in the program's success, positive outcomes will be recognized in the following manner:

a. Identified safe behaviors will be acknowledged during scheduled safety meetings.
b. The name of the observer, the person observed, and the safe behavior will be conveyed to the employees attending the safety meeting.
c. Because safety meetings are documented, a copy of the safety meeting will be placed in the above employee's personnel file.

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Matt Landers

Safety Director

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LNE Electric

Drugs, Alcohol and Other Prohibited Behaviors Policy Statement

Prohibited Behaviors:

The use, bringing onto company property or job site, possession, concealment, transportation, promotion or sale of the following substances or items by any employee as well as our subcontractors and their employees of the below items:

a. Illegal drugs, unauthorized controlled substances, look-a-likes, designer, synthetic or any other drug which may affect an employee's motor functions or alter a person's perception working
b. Prescription drugs/over the counter medication except under the following conditions:
    1. The employee will inform his supervisor prior to using any prescription drug or over the counter medication and receive written permission to possess such drug while working on the job.
    2. The prescription vial will be labeled by the dispensing pharmacy and the label will show the employees name, physician, prescription number, date the prescription was filled and the dosage rate. Prescriptions more than 30 days old will not be allowed.
    3. The over-the-counter medication will be in its original package or container.
    4. The employee may only possess enough medication for his normal shift.
c. Alcoholic beverages.
d. Firearms, weapons, explosives, and ammunition.
e. Unauthorized items such as stolen property or drug paraphernalia.

As a means of enforcement, to the extent allowed by law, all employees will be subject to searches and inspections of their person, vehicle and personal effects for the presence the above prohibited items.

Drug Free Workplace Policy:

The type of work we perform can result in serious injury if employees are not capable of focusing on their job task, as well as their surroundings and others with whom they work. It's the policy of LNE Electric to hire only persons free from any evidence of illegal use of controlled substances or other drugs including alcohol.

The involvement in the illegal manufacture, distribution, dispensing, possession or use of a controlled substance or other drug on company property or while performing company business will result in termination of employment.

While Drug-Free Workplace Act of 1988 does not apply to all employers, it does apply to employers who have received a federal contract worth $100,000.00 or more. Essentially, every state has some sort of incentive to have a drug free workplace, i.e., reduced worker compensation rates. We will comply with our state drug testing laws.

All supervisors will receive a minimum of 2 hours training in substance abuse detection.

Drug Testing:

Drug testing will be performed by certified laboratories and all results will be confidential.

Any analysis of specimens utilized to evaluate whether evidence of illegal controlled substance or other drug use exists will be confidential and remain confidential.

All initial drug tests will be paid for by our company.

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Failure to pass an initial drug test will not be considered conclusive evidence of drug miss-use. A second test will be administered to ensure that a false reading has not occurred.

Further, all positive tests will be reviewed by a Medical Review Officer and the employee may consult with this officer before the results are provided to us.

The following five classes of drugs will be tested for:

a. marijuana
b. cocaine
c. amphetamines
d. opiates
e. phencyclidine (PCP)

When Tests Are Administered:

Job Application: All applicants for full or part-time employment must submit to a "job applicant" drug test. Refusal to participate in the drug test in the manner required, or a positive confirmed drug test result indicating the illegal use of a controlled substance or other drug will be a basis for rejecting the applicant.

Fitness for Duty: consistent with applicable law or regulations, an employee must submit to a drug test conducted as part of a routinely scheduled employee fitness-for-duty medical examination. Additionally, this test will be given if there is a concern that an employee is incapable of performing his or her assigned duties.

Reasonable Suspicion: an employee must submit to drug testing when there is a belief drawn from specific objective and articulable facts and reasonable inferences that the employee is illegally using or has illegally used a controlled substance or other drugs. This will only be required upon the recommendation of a supervisor who has had training in this type of detection. Random or periodic: conducted, as permitted by statute or regulation. These tests will be without cause, suspicion, detectable performance problems, or the occurrence of an accident, incident or safety violation.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, & thus discourage employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't have been reasonably expected to be the result of impairment.

Example: A bee sting that results in an allergic reaction & leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment & thus drug testing would be considered retaliatory or discriminatory.

Note: Laboratory Testing:

The selected laboratory will perform substance testing on blood or urine specimens in accordance with standards set forth by the National Institute for Drug Abuse. Employees may be asked by collection site personnel to indicate whether there is the potential that they will test positive for prescription or other substances. A consent form and information sheet will be provided. If the employee fails to provide an acceptable urine specimen, one of the following steps will be taken:

1. **The employee's stay will be extended at the designated collection site, if feasible, until an acceptable specimen can be collected.**
2. **The test may be rescheduled due to unusual circumstances, i.e. post-operative situations.**
3. **The employee will be disciplined up to and including termination on the first offense for failing to cooperate or refusing to provide an acceptable specimen.**

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All positive urine specimen test results for employees on active status will be confirmed by standard laboratory procedures, generally gas chromatography/mass spectrometry (GC/MS), using a portion of the same specimen. In case of testing by means other than urine (i.e., breath or other samples), reliable laboratory or instrument testing procedures will be followed.

Note: Non-Lab Testing:

A visual one-step panel immunoassay for the simultaneous, qualitative detection of multiple drugs and metabolites in human urine may be used for the purpose of administering Random, Post Accident and for Cause drug screens in the field.

1. **In the event of a positive reading, the specimen will be sealed & a chain of custody form will be completed & it will be sent to a NIDA certified lab for GC/MS analysis.**
2. **If the additional test results are positive, or if the employee fails or refuses execute the Chain of Custody forms as directed, termination will result.**
3. **If the additional drug screen results are negative, the employee will be returned to work & compensated for time lost from the job.**

Enforcement:

No search, inspection or drug test will be conducted without written consent. However, any employee who refuses to provide such written consent & fully cooperate with our policies will be subject to disciplinary action up to & including discharge from employment. Under certain circumstances, disciplinary action may include a mandatory referral to & enrollment in an approved rehabilitation program at the employee's expense. This action may also require an indefinite suspension of regular employment.

An employee's job is not in jeopardy by reason of his voluntary admission to having a substance problem and request for help and referral to an approved rehabilitation program, provided there has been no prior violation of this policy, and the employee has not previously been through rehabilitation while employed with the company, and provided that **such request is made prior to, and well in advance of, any consideration of being tested under the provisions of this policy.** The cost of this rehabilitation will be at the employee's expense. The employee will be placed on a one-time administrative leave, without pay, for no longer than 30 calendar days. Employees participating in this rehabilitation program will be subject to follow-up or "maintenance" testing for a 5-year period.

If the final result of a "random", "for cause", "post-accident" or "maintenance" drug screening is positive, the employee will be terminated from employment, and he may not then request rehabilitation. No terminated employee can be reconsidered for reemployment sooner than six (6) months following termination. Any terminated employee who is subsequently rehired and later fails another drug screen will no longer be eligible to be reconsidered for employment under any circumstances.

Client Requirement:

In the event that our client has more stringent Drug Testing Guidelines, we will follow their guidelines when working for them.

Training:

Training will be provided to all employees using the hyperlinked reference materials below:

Making Your Workplace Drug-Free: A Kit for Employers

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Matt Landers

Safety Director

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LNE Electric

Environmental & Social Responsibility Policy Statement

We agree that sustainable development is important and that we should go beyond what is required by legal compliance and do what is good for the earth. This policy statement is based on ISO 26000:2010, *Guidance on Social Responsibility.* It should be noted that ISO 26000:2010 is not a standard or regulatory requirement, but rather a guide for doing corporate good.

It is our policy to be good corporate citizens and, to the best of our ability, protect the environment.

Specific actions we will take to protect the environment:

1. Reduction of Greenhouse Gases:
    a. Where possible, we will use low-emission technology such as purchasing more efficient vehicles, trucks, and machinery powered by diesel or gasoline engines.
    b. Employees are encouraged to carpool.
    c. Reduce vehicle use by pre-planning trips to reduce the miles driven.
    d. Utilizing renewable energy, where feasible.
2. Purchasing:
    a. Before purchasing products, strong consideration will be given to products that minimally impact the environment such as items made of recycled, renewable, material, items that are rated as energy efficient, etc.
3. Maintenance and Usage:
    a. Vehicles and equipment will be kept in good condition with up-to- date preventative maintenance.
    b. Employees will be instructed to not leave vehicles and equipment unnecessarily idling.
    c. When possible, the most efficient vehicles and equipment will be used.
4. Care of Local Animal, Plant Population or Habitat:
    a. Care will be taken to not disturb the local animal, plant population or habitat. This will be accomplished by reducing the noise, dust and vibrations to the lowest level possible and replacing and/or restoring damaged plant populations or habitats to the original condition before construction and/or work took place.
5. Efficient Material Management System:
    a. Care will be taken to order exactly the materials needed for a particular job as opposed to ordering about what is needed.
    b. After completion of a job, materials that can be reused will be reused instead of being thrown away. All waste materials that can be recycled or salvaged will be recycled or salvaged.

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6. Energy Conservation:
    a. Equipment not in use will be shut down.
    b. Energy efficient light bulbs will be used.
    c. When purchasing new equipment, the consideration will be given to items utilizing new energy efficient technology that have the ENERGY STAR mark.
7. Water Conservation:
    a. Leaks on hoses, pipes, faucets or equipment will be repaired.
    b. Use of a broom, or at least a mop and bucket, for cleaning purposes rather than just running water through a hose for cleaning purposes.
8. Employee Education:
    a. Employees will receive informational training on conservation and be encouraged to do their part as citizens to take care of their environment and make the earth a better place to live. Training will be taught by competent persons utilizing ISO 26000:2010 and/or other appropriate training materials.

We are committed to preservation of our environment and will, to the best of our ability, prevent pollution, limit energy consumption, reduce waste, properly dispose of waste in a responsible manner and in compliance with local, state, and federal laws, use chemical products that are not harmful to the environment, use recycled products when possible, keep our employees informed of environmental issues, and, when possible, involve our suppliers and the contractors with whom we work in environmental awareness.

This Policy Statement will be conspicuously posted.

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Safety Director

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LNE Electric

Harassment and Discrimination Policy Statement

Harassment is a form of discrimination that is offensive, impairs morale, undermines the integrity of employment relationships and causes serious harm to the productivity, efficiency and stability of our organization.

All employees have a right to work in an environment free from discrimination and harassing conduct, including sexual harassment. Harassment on the basis of an employee's **race, color, creed, ancestry, national origin, age (40 and over), disability, sex, arrest or conviction record, marital status, sexual orientation, membership in the military reserve or use or nonuse of lawful products away from work is expressly prohibited under this policy**. Harassment on any of these bases is also illegal under federal law.

This Policy Statement will be conspicuously posted. Additionally, this policy will be explained to all new employees during orientation.

Definitions

In general, harassment means persistent and unwelcome conduct or actions on any of the bases underlined above. Sexual harassment is one type of harassment and includes unwelcome sexual advances, unwelcome physical contact of a sexual nature or unwelcome verbal or physical conduct of a sexual nature.

Recognizing Harassment

Harassment may be subtle, manipulative and is not always evident. It does not refer to occasional compliments of a socially acceptable nature. It refers to behavior that is not welcome and is personally offensive. All forms of gender harassment are covered. Men can be sexually harassed; men can harass men; Women can harass other women. Offenders can be managers, supervisors, or co-workers.

Grievance Procedure

Any employee who believes he or she is being harassed, or any employee, who becomes aware of harassment, should promptly notify his or her supervisor. If the employee believes that the supervisor is the harasser, the supervisor's supervisor should be notified. If an employee is uncomfortable discussing harassment with his or her supervisor, the employee should contact Matt Landers.

Upon notification of a harassment complaint, a confidential and impartial investigation will be promptly commenced and will include direct interviews with involved parties and where necessary with employees who may be witnesses or have knowledge of matters relating to the complaint. The parties of the complaint will be notified of the findings and their options.

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Non-retaliation

This policy also expressly prohibits retaliation of any kind against any employee bringing a complaint or assisting in the investigation of a complaint. Such employees may not be adversely affected in any manner related to their employment. Retaliation is also illegal under federal law.

Disciplinary Action

Harassment and retaliation are among the most serious breaches of workplace behavior. Consequently, appropriate disciplinary or corrective action, ranging from a warning to termination, can be expected.

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Matt Landers

Safety Director

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LNE Electric

Injury & Illness Prevention Policy Statement

It is the policy of LNE Electric to provide a work environment that is inherently safe. The safety and health of our employees is of primary importance as they are our most important resource.

Safety takes a commitment from all personnel within LNE Electric.

We have developed a comprehensive safety program that addresses our specific safety concerns and provides guidance for the performance of our individual job tasks within the framework of appropriate Occupational Safety & Health Administration (OSHA) standards. Our goal is an accident free workplace with zero accidents and occupational diseases.

All employees will receive interactive safety training using the information contained in this safety program. For this training we may have safety meetings, on-the-job training, on-line courses, formal instruction, and/or any other relevant methods needed. Any additional training required by specific trades will also be required for affected employees.

Safety training needs will be identified by continual reassessment of our work methods, equipment, and work stations; as well as employee and management input.

Frequent and regular job site inspections will be conducted by supervisory personnel and/or other competent persons. Employees in violation of our established safety procedures will be subject to our disciplinary procedures. Observation of unsafe acts will be addressed immediately.

On every job site there will be a competent person, by virtue of training or experience, who will have the authority to stop work. Additionally, all employees have stop work authority for their immediate task if they are aware of a safety hazard that cannot be immediately corrected. If an employee stops work for an unresolved safety hazard, the supervisor will be contacted immediately.

Only employees qualified by training or experience are permitted to operate equipment and machinery. All operator/owner manuals will be readily available and the safety procedures contained therein will be followed. Equipment and machinery will be inspected prior to use and, if defective, tagged out of service. Manufacturer’s warning labels on all equipment will not be removed, painted over or defaced.

Emergency medical response will be available on every job site either by an emergency rescue service within reasonable distance, by time, or an assigned emergency responder.

Safety requires not only that each person understand and perform individual tasks in a safe manner, but also that each individual is aware of his surroundings and is actively involved in the safety of others.

Each Employee is encouraged to contact their supervisor immediately should a safety or health risk exist so that corrective action may be taken immediately. This Policy Statement will be conspicuously posted.

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Matt Landers

Safety Director

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Medical Treatment & Return to Work

(Injury Case Management)

In the event of an occupational injury or illness, the first priority is to ensure our employees are presented to a healthcare provider in a timely manner so that the healing process may begin.

Injured employees will be encouraged to use our designated local Occupational Health Provider, though, by law, it is not required.

Should an employee choose to use an alternate health care provider, a copy of this policy statement will be provided.

If the healing process of the employee who has suffered an occupational injury or illness is such that he/she is not capable of performing his/her regularly assigned duties, but may perform modified duty work, every effort will be made to allow this to take place.

In an effort to reduce Workers Compensation costs, improve employee retention, enhance employee morale, reduce in lost time days, and strengthening of the company's relationship with its employees, modified work should be offered, wherever possible, to employees who are unable to return to their regular duties following a workplace injury or illness.

Modified work should be both meaningful to the employee and to the company. Of course, modified work must be consistent with work restrictions outlined by the treatment provider.

Matt Landers, our safety program administrator, will advise the Contracting Company that we provide modified work to injured employees, whenever practical, and working with their case manager, develop a Physical Demands Analysis (PDA) for the employee’s assigned duties as well as a PDA for each available modified work duty.

A list of jobs **available** to be performed for employees on modified duty will be maintained. All jobs will be assessed to determine which jobs can be performed by persons working under specific restrictions.

Note: An employee’s assigned duties are defined as, “the duties he or she would have performed at least once per week before the injury or illness.”

Note: Modified work is temporary and should be managed with a goal to return the individual to full time work as soon as deemed medically fit.

We will ensure that modified work being offered is consistent with the medical restrictions listed by the health care provider. Workers must ensure that changes in the scope of the modified work must adhere to the medical restrictions. Modified work is temporary and should be managed with a goal to return the individual to full time work as soon as deemed medically fit.

Supervisors must be made aware of the restrictions to ensure the modified work meets the physician's orders.

Medical records should be kept by the employer strictly on a need-to-know basis. The records should be kept in a locked file.

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Matt Landers will maintain written records of incident details. This will be of value in recalling information about the circumstances of the incident at a later time and will demonstrate due diligence. Incident investigation records should be maintained. Records should be kept of communications with the injured employee regarding modified work. Workers Compensation and medical records, where applicable, should also be maintained.

Employees are reminded that if the physician or case manager approves restricted work and no such work is available, no work will be provided.

Our policy is consistent with Part 1904, Recording and Reporting Occupational Injuries and Illnesses.

The downside to this policy is that the employee may not be able to return to work sooner. The upside to this policy is that if an employee does return to work, he/she will know that his/her services are required.

It should be noted that if the work restriction is limited to the day of the injury or illness, and none of the other recording criteria are met, the case is not recordable on the OSHA 300 Log. The time away from work starts the day after the injury or illness.

This policy statement will be posted in a conspicuous location and may be included in scheduled safety meetings.

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Matt Landers

Safety Director

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LNE Electric

Performance Evaluation Process & Recognition Policy Statement

There are various systems in place that are used to evaluate and recognize employee performance on a project by project basis as well as overall performance within the firm with an emphasis on safety. Various metrics are used to evaluate an individual employee's commitment to safety. Included in these metrics are random weekly safety inspections performed by Matt Landers, our Safety Director, or other authorized competent person; accidents; incidents; near-misses; and active contribution in safety meetings.

Individual employees receive a rating based on these metrics. If an employee receives a satisfactory rating on each metric at the time of a project completion, their achievement is acknowledged at an annual safety dinner.

This policy statement will be posted in a conspicuous location.

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Matt Landers

Safety Director

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LNE Electric

Stop Work Authority and Workers' Right to Refuse Dangerous Work Policy Statement

As referenced in the New Hire Safety Orientation, each employee is:

a. To work in a safe manner and follow established work rules and procedures to the best of their ability.
b. To ask for clarification of safety procedures of which they are not sure prior to performing a task.
c. To report to the job site supervisor or competent person any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work.

Specific procedures have been established to ensure that all employees understand the importance of **not** performing a job task if it cannot be performed safely and in accordance with appropriate standards.

Stop Work Authority Procedures training will be given during the new hire safety orientation before initial assignment to any job task. Training will be documented and include the employee's name, dates of training, and subject.

All employees not only have the authority to stop work when control of a health, safety, or environment hazard or risk is not clearly established or understood, they have an obligation to stop work.

Procedures:

a. Upon discovery or realization that control of a health, safety, or environment hazard or risk is not clearly established or understood, the employee will immediately stop work.
b. Employees with whom he/she is working will be immediately informed so a health, safety, or environment hazard or risk does not impact them or their work.
c. The supervisor/competent person will be notified as soon as possible so the situation may be addressed (corrected).
d. If the supervisor/competent person can successfully address the issue, work will resume. If it is not resolved, work will remain stopped until it is. Most stop work procedures can be resolved in a timely manner at the job site. On occasion, it may require additional investigation to determine the root cause of the problem and the proper procedures to proceed.
e. The stop work will be documented with a stop work report.

Supervisor Review:

Supervisors reviewing stop work reports can determine employee participation in the program, the quality of the interventions, trend common issues, and identify opportunities for improvement and establish new safety procedures to preclude a reoccurrence.

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Follow-up:

After the stop work intervention has been initiated and closed, the supervisory review has been completed, all safety issues have been resolved in a timely manner at the job site to the satisfaction of all persons concerned prior to the resumption of work (or, if needed, after additional investigation and corrective actions required to identify and address root causes have been completed), the **importance of follow-up** can be demonstrated by:

a. providing a learning tool for developing improved training.
b. establishing new safety procedures.
c. facilitating sharing of learning.

Responsibilities:

Employee: Initiate a stop work intervention when warranted.

Supervisor/competent person: notify all affected personnel and supervision of the stop work issue, correct the issue, and resume work when safe to do so.

Management: Establish a culture where stop work authority is exercised freely.

Employees, while fulfilling their **obligation** to stop work when warranted, are reminded that under no circumstances will fulfilling this obligation result in any form of retribution or intimidation from our company or the company for whom we are working

This Policy Statement will be conspicuously posted.

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Matt Landers

Safety Director

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LNE Electric

Supervisor Regulatory Training Policy Statement

Our safety director, Matt Landers, or a designated competent person, will ensure that all newly promoted or hired supervisors are aware of the accessibility of our safety program. Through interactive discussion and/or practical demonstration, Matt Landers will ensure that each supervisor understands the specific safety policies and procedures that pertain to the actual work to be performed.

Supervisors are reminded that safety training is an on-going process. Depending on circumstances, training will take the form of some or all of the following: safety meetings, on-the-job instruction, formal and informal training.

All supervisors are reminded that our company encourages continuing OSHA safety training. All costs associated with required safety training will be paid for by our company.

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Matt Landers

Safety Director

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LNE Electric

Supervisors Safety Orientation Policy Statement

Our safety director, Matt Landers, or a designated competent person, will ensure that all newly promoted or hired supervisors are aware of the accessibility of our safety program. Through interactive discussion and/or practical demonstration, Matt Landers will ensure that each supervisor understands the specific safety policies and procedures that pertain to the actual work to be performed.

Supervisors are reminded that safety training is an on-going process. Depending on circumstances, training will take the form of some or all of the following: safety meetings, on-the-job instruction, formal and informal training.

At a minimum, safety training/orientation will include: accident investigation, emergency procedures, enforcement/disciplinary procedures, fire protection/ prevention, first aid training, safe work practices, safety meetings, and work permits.

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Matt Landers

Safety Director

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Section I
General Policies & Procedures

Standards:

1926.16 - Rules of Construction
1926.20 - General Safety and Health Provisions
1926.21 - Safety Training and Education
1926.34 - Means of Egress
Part 1904 - Recording and Reporting Occupational Injuries and Illness

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Safety Program Overview

This comprehensive safety & health training program has been developed to address our specific safety concerns and to provide guidance for the performance of individual job tasks within the framework of appropriate Occupational Safety & Health Administration (OSHA) standards.

Safety demands a commitment from all personnel within our organization. As a contractor, we have an obligation to ensure that all our employees are afforded the protection of an appropriate safety & health program.

This program contains policies and procedures to deal with common job site place hazards, specific job-related hazards, and potential hazards that may arise.

Hazard assessment, project pre-planning, and engineering controls, where feasible, will be the preferred method of providing a safe job site. Hazards that remain will be minimized or eliminated through training which provides our employees the ability to recognize job site hazards and understand the proper procedural and/or personal protective equipment requirements.

Each employee is encouraged to contact their supervisor immediately should a safety or health risk exist so that corrective action may be taken to eliminate the hazard entirely or deal with the hazard in a safe manner through modified work procedures, PPE, and/or other appropriate action.

On all job sites, at least one person will be designated a “competent person” by virtue of experience or training. This person will have the ability to identify work related hazards, know the corrective procedures, and have the responsibility, ability and authority to stop work if the job site cannot be made safe.

Our Safety Director, Matt Landers, or a designated competent person will make routine and random job site inspections to both identify new hazards and to monitor the effectiveness of our safety & health program.

In the final analysis, the success of our safety effort depends on all employees from senior management to the newest hire demonstrating a commitment to safety by working in a safe manner. Safe job performance is how our safety effort is ultimately measured.

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Accident/Injury Prevention

Our safety program is designed so that our employees do not work in conditions that are unsanitary, hazardous, or dangerous to their health or safety.

One lax moment in terms of safety may result in a lifetime of needless pain and suffering. Disregarding safety standards may even be fatal. While an accident may happen in an instant, the consequences may last for years.

Accident prevention requires a commitment from all personnel within our company to actively participate in our safety program. All personnel should be aware of job site hazards and follow procedures to eliminate these hazards by using proper work methods, use of personal protective equipment, and proper use of tools and equipment. All persons are encouraged to ask questions and make positive suggestions for safety improvement.

Competent persons will be designated to provide job site expertise, as well as regular inspections of equipment, materials, and procedures.

Competent persons will have the authority to stop work if a safety hazard is identified and it cannot be corrected immediately.

All machinery, tools, materials, and equipment deemed unsafe will be taken out of service by physically removing, tagging, or locking controls to render them inoperable.

Only persons qualified by training or experience will be allowed to operate equipment or machinery.

All tools and items of equipment will be used for the purpose for which they were designed. For example, a wrench is not a hammer, a ladder is not a horizontal plank, and a fire extinguisher is not a cooler!

Never take chances or attempt any job without being aware of the proper procedures, the potential safety hazards, and the methods to reduce or eliminate risk.

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Company Personnel

The following are descriptions of the different roles and expectations for all personnel of LNE Electric.

Safety Director

Our Safety Director is: Matt Landers

Matt Landers has overall responsibility for the implementation of our program and will ensure each employee has appropriate safety training for the tasks to be performed.

Additionally, Matt Landers will perform a hazard assessment of our job sites to determine if hazards are present, or are likely to be present, which will necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

While Matt Landers's responsibilities cannot be further delegated, most of the duties can be to those who are competent persons by virtue of training or experience.

Safety Program Administrator

The Safety Program Administrator for LNE Electric is: Matt Landers

Matt Landers has been deemed competent by LNE Electric and may be assigned to perform the below duties:

a. The actual training of personnel.
b. Maintenance of training records.
c. Random inspections to verify adherence to safety rules and policies.
d. Completion of specific tasks identified within our OSHA compliance programs found in Section III of this safety program.
e. Hazard assessments.

Note: The safety director and program administrator may or may not be the same person.

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Employee Involvement

All employees are encouraged to participate actively in our safety & health program. Do not hesitate to point out perceived safety deficiencies to your supervisor or the competent person – you may prevent an injury to yourself or a fellow worker. With the goal of providing a safer worksite for all of us, employee suggestions for improving safety management are welcomed and encouraged. Never perform any task on which you are not confident in your understanding of the safety procedures. If in doubt, ask your immediate supervisor for guidance.

It is expected that all employees will abide by our safety rules and guidelines [as well as applicable local, state, and federal standards] not only to protect themselves, but also to protect their fellow workers from harm. Should a safety violation occur, the violation will be documented by the employee's immediate supervisor and the provisions of our enforcement program will be implemented.

Employees are reminded that they are encouraged, without fear of reprisal, to anonymously report safety hazards or concerns. This may be done by a telephone call to Matt Landers or by leaving a sealed envelope containing the concern on Matt Landers's desk.

Supervisor Responsibilities

Supervisors are responsible for implementing and maintaining the provisions of this Safety Program with their area of responsibility. They are to perform periodic assessments either for each phase of work or on a designated schedule. A copy of this Safety Program is available to each supervisor as well as their employees.

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Hazard Assessment

Prior to work on any project, as well as the introduction of new substances, procedures or processes, a hazard assessment will be made by Matt Landers, or authorized representative, to identify and evaluate these possible workplace hazards. Employees will be informed, before performing work, of any special precautions or changes in procedures that must be taken to negate these hazards.

Daily job site inspections will be conducted using our job site inspections forms to identify not only lack of safety compliance, but the introduction of new safety hazards that must be addressed. Copies of these job site inspection forms will be maintained in Matt Landers's office.

Additionally, Matt Landers or a designated competent person will make routine and random job site inspections to both identify new hazards and to monitor the effectiveness of our safety & health program.

While all hazards identified by inspection (or other means) will be corrected in the order of their severity [the most serious corrected first], all hazards will be eliminated before work proceeds.

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Job Hazard Analysis

OSHA Booklet 3071 Job Hazard Analysis

All employees and all subcontractors will read the above OSHA Booklet 3071, Job Hazard Analysis and use the information contained therein to complete our Job Task Safety Analysis Forms.

Using the above referenced booklet and other training materials, employees and subcontractors will be trained in the hazard identification process.

The formal process to identify potential hazards is as follows:

A Certificate of Workplace Hazard Assessment will be prepared, signed and dated, by Matt Landers, our safety program administrator, indicating that a hazard assessment of our job sites and methods of operations has been accomplished. This hazard assessment will focus on the need for PPE which cannot be eliminated through engineering or administrative controls.

Because they have insight to the hazards involved, employees and subcontractors who actually perform job tasks will be included in job hazard analysis.

A review will be made of previous accidents and injuries as well as “near-misses” to determine if existing hazard controls are adequate or need improvement.

In discussion with employees and subcontractors, ideas to eliminate hazards will be discussed and formalized for inclusion on our job task safety analysis form which follows this page.

Hazards associated with various tasks will be ranked and prioritized with the jobs that possess hazards that present unacceptable risks, based on those most likely to occur and with the most severe consequences identified for first priority for analysis.

The job task safety analysis form will be completed for each task and, as a matter of course, hazard identification will be performed on all job tasks, both routine and non-routine, before actual work is performed. Hazard identification would be prepared for new processes, changes in operation, products or services, as applicable.

Through frequent and routine job site inspection, review of incidents [or lack thereof], and employee and subcontractor feedback, the above will insure that the identified hazards are mitigated. Should problems occur or a potential risk/hazard be discovered, work will stop until the job task hazard analysis form is adjusted to correct any deficiencies found.

The above review process will take place on all job tasks to ensure that new hazards were not created while eliminated others.

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If all employees and subcontractors followed established OSHA compliant procedures to accomplish their job tasks, the probability of an accident would be minimal and, should an accident/incident occur, the probability of severity would be minimal.

For example, if an employee were working above six feet from a lower level and had had training in fall protection including a) the need to know where fall protection is required b) selection of fall protection systems which are appropriate for given situations, c) construction and installation of safety systems, d) supervision and inspection of employees, e) implementation of safe work procedures (including, for example, area clear of debris, dry, firm walking/working surface, etc), and, f) training in selection, use, and maintenance of fall protection systems the probability of falling is minimal and if a fall started to occur, the guard rail system or the personal fall protection equipment would prevent contact with the lower level and the possibility of injury.

In spite of the above, a formal hazard identification and risk assessment process is in place to identify potential hazards. We will use area specific analysis/inspections utilizing JSA's and JHA's which are valid only if all employees as well as our subcontractors are actively involved in the process.

All employees and subcontractors must be actively involved in our formal hazardous identification process. All hazards identified will be reviewed by all employees concerned.

The hazard identification process will be used for routine and non-routine activities as well as new processes, changes in operation, products, or services as applicable.

Hazards will be classified and ranked based on severity of possible injury and probability that an accident will occur.

Evaluation of additional hazards from employees performing tasks with other trades or crafts will be performed.

Our procedures are as follows:

The supervisor, working with employees and subcontractors who actually perform a task will use a worksheet for that task listing all components of the task. Working together, they will list all things that could go wrong resulting in an accident. Finally, specific steps will be developed to eliminate the probability of an accident. These steps will be transferred to our task analysis form which will be kept on the job site. An example is below:

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Sample Individual Task Worksheet

Task:: Accessing a roof using a fixed Ladder	From Category Determination Matrix: LOW RISK	
Job Steps	**Hazards**	**Controls**
1. Getting ladder 2. Setting ladder against wall 3. Climbing ladder 4. Accessing roof 5. Reverse Process	1. Hurt back lifting ladder 2. Defective ladder breaks 3. Ladder sinks into ground 4. Ladder falls over 5. Employee falls off ladder. 6. Hurting back	1. Use proper lifting techniques 2. Inspect ladder before use 3. Set ladder on firm, solid, level foundation 4. Tie-off ladder, extend 3' above roof edge, ensure proper angle 5. Use 3-point climbing technique 6. Use proper lifting techniques

Severity Class:

1 = Catastrophic Death or long-term hospitalization. 2 = Critical Requires short term hospitalization 3 = Marginal Clinic outpatient treatment
4 = Negligible First aid at job site and keep working

Probability of an Accident

1 = Frequent
2 = Likely
3 = Occasional
4 = Seldom
5 = Unlikely

See Sample Form Below:

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Company Name: | **Activity Hazard Analysis (AHA)** | | OF |

Activity/Work Task:	
Project Location:	
Contract Number:	
Date Prepared:	
Prepared By:	
Reviewed By:	
Notes (Field Notes, Review Comments, etc.)	

Overall Risk Assessment Code (RAC) (Use Highest Code)

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "**Hazard**" with identified safety "**Controls**" and determine RAC (See Above)

"**Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.

"**Severity**" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible.

"**Step 2**": Identify the RAC (Probability/Severity) as E, H, M, or L for each "**Hazard**" on JHA. Annotate the overall highest RAC at the top of JHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Steps	Hazards	Controls	RAC

Equipment To Be Used	Training	Inspection Requirements

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The below is extracted from Appendix 1 to OSHA 3071 Job Hazard Analysis, Hazard Control Measures

The order of precedence and effectiveness of hazard control is as follows:

a. Engineering controls.
b. Administrative controls.
c. Personal protective equipment.

Engineering controls include the following:

a. Elimination/minimization of the hazard – Designing the facility, equipment, or process to remove the hazard, or substituting processes, equipment, materials, or other factors to lessen the hazard;
b. Enclosure of the hazard using enclosed cabs, enclosures for noisy equipment, or other means;
c. Isolation of the hazard with interlocks, machine guards, blast shields, welding curtains, or other means; and
d. Removal or redirection of the hazard such as with local and exhaust ventilation.

Administrative controls include the following:

a. Written operating procedures, work permits, and safe work practices; Exposure time limitations (used most commonly to control temperature extremes and ergonomic hazards);
b. Monitoring the use of highly hazardous materials;
c. Alarms, signs, and warnings;
d. Buddy system; and
e. Training.

Personal Protective Equipment – such as respirators, hearing protection, protective clothing, safety glasses, and hardhats – is acceptable as a control method in the following circumstances:

a. When engineering controls are not feasible or do not totally eliminate the hazard;
b. While engineering controls are being developed;
c. When safe work practices do not provide sufficient additional protection; and
d. During emergencies when engineering controls may not be feasible.

Use of one hazard control method over another higher in the control precedence may be appropriate for providing interim protection until the hazard is abated permanently. In reality, if the hazard cannot be eliminated entirely, the adopted control measures will likely be a combination of all three items instituted simultaneously.

By dedicated assignment, appropriate documentation of completion, and implementation of controls, the above methods and procedures ensure identified hazards are addressed and mitigated.

All employees will be trained in the hazard identification process including the use and care of proper PPE.

Part of our review process of all identified hazards and the corrective measures to eliminate them will be a concentrated effort to ensure that the corrective measures **do not create hazards** in and of themselves. This review process will involve Matt Landers, supervisors, the employees, and subcontractors

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Training

All employees, prior to assignment to perform any work, will demonstrate to Matt Landers, or other competent person, the ability to perform the tasks safely. Additionally, all employees will be provided employee handbooks and indicate with their signature that they understand our general safety and health work practices.

To the extent possible, training will be interactive, and will include, as appropriate, formal instruction, scheduled safety meetings, on-line training, on-the job training, and written instructions. Safety information will also be posted on our job site bulletin board. All personnel will have ready access to our safety program as well as employee handbooks.

All training will be documented using our Training Certification Form and our Retraining Certification Form. These records will be maintained by Matt Landers and include the employee's name, date of training, types of training, and the name of the competent training provider.

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Safe Office Practices

When employees are working in areas such as offices, warehouses, storage areas, garages, etc., compliance with the below safety practices/procedures is mandatory. Supervisors will insist that the safety practices and procedures are observed and are expected to take disciplinary action against employees for non-compliance.

Employees must:

a. Report all unsafe conditions and equipment to their supervisor or Matt Landers, our safety program administrator.
b. Report all incidents, injuries and illnesses to their supervisor or Matt Landers immediately.
c. Keep means of egress unblocked, well-lit, and unlocked during work hours.
d. Sound the alarm and evacuate in the event of fire.
e. Upon hearing fire alarm, stop work and proceed to the nearest clear exit and then gather at the designated muster location.
f. Not attempt to respond to a fire or other emergency unless trained to do so.
g. Keep stairways clear of items that can be tripped over.
h. Not store combustibles under stairways that are egress routes.
i. Not store materials and equipment against doors or exits, fire ladders or fire extinguisher stations.
j. Keep aisles clear at all times.
k. Maintain work areas in a neat, orderly manner. Place trash and refuse into proper waste containers.
l. Wipe up all spills promptly.
m. Store files and supplies in such a manner as to preclude damage to the supplies or injury to personnel when they are moved. Heaviest items should be stored closest to the floor and lightweight items stored above.
n. Ensure all cords running into walk areas are taped down or inserted through rubber protectors to preclude them from becoming tripping hazards.
o. Never stack material precariously on top of lockers, file cabinets or other high places.
p. Never leave desk or cabinet drawers open that present a tripping hazard. Use care when opening and closing drawers to avoid pinching fingers.
q. Not open more than one upper drawer at a time, particularly the top two drawers on tall file cabinets.
r. Always use the proper lifting techniques. Never attempt to lift or push an object which is too heavy. Contact your supervisor when help is needed to move a heavy object.
s. Exercise caution when carrying material to ensure firm footing and clear line of sight.
t. Plug all electrical equipment into appropriate wall receptacles or into an extension of only one cord of similar size and capacity. Three- pronged plugs should be used to ensure continuity of ground.

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u. Keep individual heaters at work areas clear of combustible materials such as drapes or waste from waste baskets. Heaters which are equipped with tip over switches should be used.
v. Keep appliances such as coffee pots and microwaves in working order and inspected for signs of wear, heat, or fraying of cords.
w. Ensure fans used in work areas are guarded. Guards must not allow fingers to be inserted through the mesh. All fans must be equipped with proper guards which have openings of ½ inch or less.
x. Use equipment such as scissors, staplers, etc. for their intended purposes only. They are not to be used as hammers, pry bars, screwdrivers, etc. Misuse can cause damage to the equipment and possible injury to the user.
y. Store cleaning supplies away from edible items on kitchen shelves.
z. Store cleaning solvents and flammable liquids in appropriate containers.
aa. Keep solutions that may be poisonous or not intended for consumption in well-labeled containers.
ab. Not remove or deface equipment or product ANSI or other warning signs/symbols and they must heed their warnings.
ac. Ensure owner's manuals for office equipment are readily available.
ad. Ensure a list of hazardous chemicals, if applicable, and SDS are readily available.

The above list is not all inclusive. Employees are encouraged to suggest additional safety ideas and/or procedures to Matt Landers, our Safety Director for inclusion in weekly safety meetings.

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Safety Meetings

Scheduled safety meetings (at least weekly) provide an opportunity for reinforcing the importance of general safety as well as specific work related procedures applicable to the work at hand. Properly prepared safety meetings will focus on one or two topics and be direct and to the point. All safety questions will be addressed and interactive participation is encouraged.

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Employee Evaluation

Our safety program establishes policies and procedures for our employees to enable them to work in a safe manner. Our goal is to provide a workplace that is free from recognized hazards and have a workforce that is capable of performing their individual job tasks safely.

The primary tool used to evaluate employee safety performance is regular and frequent – documented – job site inspections using our job site checklists as a guide.

The second tool is our regularly scheduled – documented – safety meetings which, by design, are interactive allowing the instructor to ask and answer questions and get a solid feel for employee interest and knowledge of the safety topic being discussed.

The third tool is our enforcement program. Not only are all lapses of safety compliance documented on our job site checklists, they are also documented on our enforcement forms.

Using these three evaluation tools, Matt Landers will be able to identify not only those employees who are knowledgeable and competent in their safety performance, but also those employees who need extra training, extra supervision, and/or extra disciplinary action.

Using the above tools, Matt Landers, on a monthly basis, will review and evaluate employee performance and, if necessary, take action to ensure that employees do not put themselves, or those they work with, at risk.

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Working Alone

Working alone presents certain safety hazards that must be addressed to protect the employee from possible harm. For all practical purposes, working alone would include all work situations where an individual employee cannot be seen or heard by other workers.

Working alone would include working in a **discrete location** on a job site where there are many other employees, but the lone worker cannot be seen or heard by other employees. Of course, working alone would also include an employee working at a distant location by himself or herself.

Whether working alone in a discrete location on a job site with other employees actively working or working alone a distant location, the responsibility for establishing safety procedures to be followed will rest with the Project Manager.

Procedures to be established by the Project Manager:

Hazard Assessment:

A Hazard Assessment will be performed with the employee who will be working along and the assessment will address:

a. The type of work to be performed and the potential hazards and control measures to minimize or eliminate the potential hazards such as:
    1. The availability and use of PPE.
    2. The availability and use of special tools.
b. Is the work to be performed high-risk or hazardous such as confined space entry, working at heights above six (6) feet, electrical work, hazardous materials work, or use of hazardous equipment such as chainsaws?
c. The anticipated weather conditions and methods and control measures to eliminate the hazards of inclement weather such as:
    1. The availability and use of rain wear.
    2. The availability and use of cold weather clothing.
d. The training of the employee to ensure that he/she is competent to perform the assigned job task and control measures to ensure training is adequate. The Project Manager and the employee will review the tasks to be performed and determine if additional training is required before being sent out to work alone.
e. The employee medical condition and his/her ability to physically perform the work. If it is determined that the tasks to be performed or the conditions in which the tasks are to be performed require a level of stamina that the employee cannot meet, the employee will not be sent out to work alone.
f. The travel time required to reach the job location and method of transportation which would include:
    1. Company vehicle with fire extinguisher, water, food, SDS's (if appropriate), and first aid kit.
    2. Privately owned with fire extinguisher, water, food SDS's (if appropriate), and a first aid kit.

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g. Communication equipment and procedures to ensure direct, reliable, scheduled contact with the Project Manager and the employee working alone.
    1. Land line phone.
    2. Cell phone.
    3. Radio.

Depending on the type of work to be performed based on the risk assessment, a schedule of communication between the lone worker and the Project Manager will be established. Check-in could be as often as every 15 minutes while performing a hazardous task to every few hours (or longer) for routine, non-hazardous tasks.

The Project Manager is responsible for establishing the check-in schedule and, failure to receive a check-in call will result in the implementation of a documented back-up plan.

Failure to Communicate Back-Up Plan:

For an employee working alone in a **discrete location** on a job site where there are many other employees, but the lone worker cannot be seen or heard by other employees, the Project Manager will physically check (or direct another employee to physically check) on the health and safety of the lone worker within one minute of not receiving a scheduled communication.

For an employee working at a distant location by himself or herself, the Project Manager will, within 1 minute of not receiving a scheduled communication, call the lone worker to try to establish communication. Failure to reach the lone employee will necessitate calling the appropriate local emergency responder (at the lone worker's location) and giving them the below information:

a. The exact location of the worker
b. The type of work being perform
c. The fact that the worker failed to call in

Because the back-up plan goes into effect essentially immediately, it must be emphasized to the lone worker the importance on establishing communication on time!

Additionally, because the whole thrust of this program is to protect the lone worker in a time efficient manner, weather conditions, the lone employee's physical fitness, and length of time missing play no part in the Project Manager delaying the call for assistance in searching for or provided emergency assistance by the closest emergency providers.

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Short Service Employees

It is our policy to identify all short service employees and place certain restrictions on their use in the petrochemical industry environment. While care is always taken to work safely and avoid accidents and injuries, additional efforts must be taken in this setting the ramifications could be catastrophic.

Short Service Employees are defined as those employees who have less than six (6) months experience performing the same job type or have less than six (6) months as an employee of our company.

To notify the project coordinator, contractor contact, or on-site supervisor of those we have identified as short service employees, prior to job mobilization, a Short Serve Employee (SSE) Form will be prepared and submitted. Accuracy is critical because if an SSE arrives on the operator's property for whom a SSE Form has not been submitted, the operator management may elect to send the employee back at our expense.

Operator work owner or person in charge will determine approval status and retain the original form in the project files.

Crew make-up and restrictions:

a. A Single person crew cannot be an SSE.
b Crew sizes of less than five will have not more than one SSE.
c. Crews that have more than 20 percent SSE personnel will only be permitted with written Variance Form, which serves a mitigation plan, by the appropriate Manager of Supervisor.

SSE Identification:

All SSE personnel will be visibly identified by wearing a high visibility orange hard hat.

SSE Monitoring:

All SSE personnel, as well as all other employees, will be monitored for safety performance of their job tasks as well as compliance with all appropriate safety and health policies and procedures.

Release from SSE status:

If an SSE has worked safely and adhered to all safety policies and procedures and has **not** had a recordable incident, the SSE identifier may be removed.

If an SSE fails to complete the above, operator approval, in writing, must be obtained prior to returning to the operator's property.

Mentoring:

To assist in the safety development of SSE personnel, a mentor will be assigned to an SSE. The duties of the mentor, who must be a competent person, will be to ensure that the SSE understands the intricacies of his job tasks and performs them in a safe manner.

A mentor can only be assigned one SSE per crew and the mentor must be on site with the SSE.

Subcontractors:

In the event we have subcontractors working for us, they, too, will fall under the provisions of this policy.

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Subcontractor Management Plan (SMP)

It is our responsibility to ensure that all subcontractors that we hire to perform work on behalf of our company adhere to the appropriate Health, Safety, and Environmental standards required by all local, state, and federal regulations.

To be certain that our subcontractors follow all necessary regulations & that their safety programs meet or exceed our own safety program requirements, we will review the safety efforts made by all subcontractors who may be working with us. This will be done by **pre-qualifying** all subcontractors by reviewing their safety programs, safety training documents, & safety statistics. Raw safety metrics (measurements) we consider include:

a. A written safety program.
b. Safety training documentation/certification.
c. Documented safety meetings.
d. Documented job site inspections.
e. Documented enforcement policy and procedures.
f. A demonstration of management's commitment to safety.
g. A demonstration of their ability of doing the type of work for which they are being hired which would include insurances, licenses, equipment (or the ability to rent equipment), etc.

While the above could be considered a commitment to safety, they do not indicate, in and of themselves, whether safety procedures are followed in practice.

Acceptable safety metrics are measurable "trailing safety indicators" and include:

EMR - Experience Modifier Rate is the rate used to calculate worker's compensation insurance premium. It is calculated by an advisory organization (also known as rating bureaus) such as the National Council on Compensation Insurance based on historic loss and payroll data of a particular insured.

TRIR - Total Recordable Incident Rate includes medical treatment, restricted duty, job transfer, days away, and higher. Excludes first aid and close calls.

DART - Days Away / Restricted (duty) / (job) Transfer: excludes medical treatment, first aid, and close calls. Value of this indicator is for case management evaluation purposes (e.g., return to work on restricted basis is good versus staying out until 100% "healthy" again.)

DACR - Days Away Case Rate: minus restricted duty and job transfer.

<u>Using the above indicators:</u>

We will ask our potential subcontractors to provide:

a. Documented evidence of their designated OSHA Total Recordable Incident Rate (TRIR) with NAICS Code, which will be considered as one indicator of the effectiveness of their safety and health program, and will also be considered as part of the subcontractor evaluation. They must also provide their current Recordable Incident Rate (RIR) and the previous two year's TRIRs.
b. Documented evidence of their OSHA DART rate (Days away from work, days of restricted work activity or job transfer) with NAICS Code, which will be considered as one indicator of the effectiveness of their safety and health program, and will also be considered as part of the subcontractor evaluation. They must provide their current DART rate and the previous two year's DART rates.

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c. Documented evidence of their designated Safety Experience Modifier Rate (EMR) used to calculate Workmen's Compensation Insurance, which will be considered as one indicator of the effectiveness of their safety and health program and will be considered as part of the subcontractor evaluation. They must provide your most current EMR rating and the previous two years' EMR ratings.

Note: Those having a current EMR rating above 0.99 must submit a detailed explanation that addresses any mitigating circumstances that caused their EMR rating to exceed .99. This explanation should include any corrective action taken.

Prior to initiation of work, a pre-job meeting and safety orientation will be held with all subcontractors to apprise them of the protective measures we have determined to be appropriate. At this meeting, all safety requirements will be conveyed to our subcontractors. If permitted, our subcontractors will attend all safety orientation meetings provided by the contractor for whom we are working.

At the completion of each job, **a post-job safety performance review** of our personnel as well as the subcontractor's personnel will be completed to ensure that all potential deficiencies are eliminated.

Roles and Responsibilities

Subcontractors are required to designate an onsite safety representative. This person will coordinate all safety efforts with our onsite safety personnel. Input and suggestions from subcontractors will be solicited. Attention will be given to hazards one subcontractor may create and the measures they will take to prevent other subcontractors from these exposures. One measure that will always be taken is the sharing of appropriate Safety Data Sheet information.

The onsite safety representative will ensure that the below four major elements of safety management that apply to our operations also apply to our subcontractors:

a. management commitment and employee involvement.
b. hazard analysis.
c. hazard prevention and control.
d. safety & health training.

Subcontractors who are working for us must attend regularly scheduled and documented safety meetings conducted by our competent persons. They also must conduct regular and frequent job site inspections and may document these inspections using our safety inspection checklists or their own.

Hazard Assessment and Inspections

OSHA Booklet 3071 Job Hazard Analysis

All subcontractors and their employees will read the above OSHA Booklet 3071, Job Hazard Analysis and use the information contained therein to complete our Job Task Safety Analysis Forms.

Using the above referenced booklet and other training materials, subcontractors will provide training in the hazard identification process to their employees.

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The formal process to identify potential hazards is as follows:

a. A Certificate of Workplace Hazard Assessment will be prepared, signed and dated, by the PPE Program Administrator, indicating that a hazard assessment of our job sites and methods of operations has been accomplished. This hazard assessment will focus on the need for PPE which cannot be eliminated through engineering or administrative controls.
b. Because they have insight to the hazards involved, employees and subcontractors who actually perform job tasks will be included in job hazard analysis.
c. A review will be made of previous accidents and injuries as well as “near-misses” to determine if existing hazard controls are adequate or need improvement.
d. In discussion with employees and subcontractors, ideas to eliminate hazards will be discussed and formalized for inclusion on our job task safety analysis form which follows this page.
e. Hazards associated with various tasks will be ranked and prioritized with the jobs that possess hazards that present unacceptable risks, based on those most likely to occur and with the most severe consequences identified for first priority for analysis.
f. The job task safety analysis form will be completed for each task and, as a matter of course, hazard identification will be performed on all job tasks, both routine and non-routine, before actual work is performed. Hazard identification would be prepared for new processes, changes in operation, products or services, as applicable.

Through frequent and routine job site inspection, review of incidents [or lack thereof], and employee and subcontractor feedback, the above will insure that the identified hazards are mitigated. Should problems occur or a potential risk/hazard be discovered, work will stop until the job task hazard analysis form is adjusted to correct any deficiencies found.

The above review process will take place on all job tasks to ensure that new hazards were not created while eliminated others.

Incident/Injury Recordkeeping and Reporting

As a matter of policy, all subcontractor employees are to report all work-related incidents and injuries immediately to their competent person/supervisor on the job site. The competent person/supervisor will notify our safety director who will complete an accident investigation form. They will forward the completed form to the subcontractor.

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Emergency Action Plan

Note: When working at another contractor's facility, our company would fall under the provisions of their emergency action plan and a copy of their plan would be posted at our job site.

Events may occur which dictate the evacuation of the workplace such as fire, severe inclement weather, or power failure. Additionally, events may occur which dictate the need for emergency medical responders. These sets of events fall under our Emergency Action Plan and a multitude of objectives must be met.

The first and foremost objective is the safety of all our personnel. To achieve this level of safety, our plan is designed to get personnel away from danger, treat injury, and provide for a thorough and accurate accounting of all employees.

There may well be situations where certain employees, trained in first aid and/or firefighting procedures, may prevent a small emergency situation from becoming a major disaster. In these types of situations, these employees, identified in this plan, will remain on the job site to perform the function for which they are trained provided they may perform these duties, in their judgment, in a safe manner. At no time will any employee put himself/herself at risk.

This will include an alarm system to signal an emergency. The alarm will have a different signal for each type of emergency. To ensure that it is working correctly when needed, it will be inspected and maintained on a regular interval.

All exits will be identified with a sign having the word "EXIT" plainly legible. Exit signs will be suitably illuminated. Doors, passageways, stairs, etc., which appear to be an exit but are not will be identified by a sign that reads, for example: "Not an Exit" Aisles and passageways will be kept clear to provide a direct, easy egress from our facility.

There will also be a rendezvous point posted that all employees will meet at after if evacuated. There will be a role call to ensure all personnel evacuated safely.

A copy of this plan will be posted at the job site and, like all safety materials, is readily available for review. If we have 10 or fewer employees, the plan may be communicated orally to those employees and the we do not need to maintain a written plan. The emergency action plan will be posted at the job site with our emergency escape route diagram and emergency telephone numbers.

Training

It is important that the actual implementation of this plan be simple, direct, and carried out without confusion. Before implementing the emergency action plan, we will designate and train employees to assist in the safe and orderly emergency evacuation of other employees. Each employee must know how to alert others, how to call for assistance, the location of fire extinguishers, the escape route, the rendezvous point (being accounted for so that others do not put themselves at risk looking for a person who has already reached safety), and specific tasks that may be required of specific personnel during emergency procedures.

We will conduct a review with each employee covered by the plan at the following times:

a. Initially when the plan is developed.
b. Initially when assign to a job.
c. Whenever the employee's responsibilities or designated actions under the plan change.
d. Whenever the plan is changed.

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A copy of 29 CFR 1926.35, Employee Emergency Action Plans is readily available for review in our Safety Program.

Additionally, any employee who needs or wants more information on our Emergency Action Plan or their specific duties may contact the below person:

Program Administrator: Matt Landers

Phone Number: 9713928688

3rd Party Emergency Action Plans

When working at a client's facility, our personnel will fall under the provisions of their emergency action plan. When we rely on the emergency action plan of our client, our employees must be made aware of the rendezvous point and personnel headcount requirements within the client's plan after an evacuation.

Additionally, if we have employees who are considered to be part of critical operations and, if so, we will make prior provisions for additional employee training, tools, and equipment. When working under the plan of our client, we will follow all the same training requirements that apply to our plan plus any re-training frequency requirements of our client.

The following are standard operating procedures

Calling for Emergency Medical Response:

Should an injury occur that requires an emergency medical responder, the below listed actions will be taken in order given:

a. Call 911 or the emergency response number posted on the job site.
    1. In the absence of 911 services, the telephone numbers of physicians, hospitals, or ambulances will be conspicuously posted with our emergency phone numbers. The method of contacting emergency services must be effective at the required location and should be tested to ensure reliability.
    2. In remote areas that do not have automatic location capability for 911, we will post either the latitude and longitude of the worksite or other location identification information that effectively communicates the location of the worksite in a conspicuous location.
b. Call the Administrative Office at: 9713928688
    1. Help will immediately be sent and a person will be designated to direct the emergency responders to the injured person.
    2. If appropriate, Safety Data Sheets will be provided the emergency responders.
c. Provide any medical assistance you are trained and certified to do. Do not provide any medical assistance you are not trained to do.
d. The communication system to be used to ensure proper equipment for transportation of the injured person to a physician or hospital is calling on a cell phone posted emergency phone numbers.
e. If an employee must go to a medical facility for treatment, a member of management will accompany him/her.

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Assigned First Aid Providers:

_____

_____

_____

Note: If none, enter "None"

Reporting a Fire or another Emergency:

The phone number of the local fire department will be posted with other emergency numbers.

If a fire should occur, all personnel and the local fire department will be notified. As in all emergency situations, per the American Trauma Society, people calling the fire department should:

a. **Remain calm.**
b. Speak clearly and slowly.
c. Give the exact location.
d. Describe the situation.
e. Give the phone number from where you are calling.
f. Do not hang up until told to do so.

Evacuation Plan:

For Fire/Explosion/Severe Weather/Mechanical Failure, etc.

The order to evacuate is given by: _____

Note: LNE Electric must have and maintain an employee alarm system.

Note: A distinctive signal will be identified for each type of emergency notification.

Example: Fire Bell; Three (3) Blasts of an Air Horn; Public Announcement

To alert others: _____

Example: Activate alarm; notify main office,

Location of fire extinguishers, nearest listed first:

_____	_____
Type	Location
_____	_____
Type	Location
_____	_____
Type	Location

Rendezvous Point:

_____

Example: Parking lot; by dumpster

Specific Hazards to be aware of:

_____

(Example: List nearby hazardous chemicals. If none, enter "none")

Evacuation Route:

Map or schematic drawing of route will be posted

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Roster of Personnel with Specific Duties During an Evacuation:

The following are personnel who will stay behind and perform the assigned duties listed before evacuation:

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

Note: Examples of specific duties: Deenergizing certain equipment or machinery; accounting for personnel at rendezvous point; manning fire extinguishers; directing emergency responders; on alert for First Aid delivery; rescue team member; etc. If none, enter: "None".

Emergency Rescue/Medical Duties:

Our employees are not to perform emergency rescue or emergency medical duties. These duties will be performed by personnel with expertise in these areas.

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Fire Prevention Plan

Fire Prevention deals not with handling a fire emergency, but rather preventing a fire in the first place.

To reduce the likelihood of a fire, personnel are to adhere to the following rules:

a. Smoking is allowed only in designated areas and smoking materials will be totally extinguished and placed in the appropriate receptacles.
b. All chemical products will be handled and stored in accordance with the procedures noted on their individual SDS.
c. Heat producing equipment will be properly maintained and operated per the manufacturer's instructions to prevent accidental ignition of combustible materials.
d. Precautions will be taken when working with an open flame (such as welding) and those areas will be made fire safe by removing or protecting combustibles from ignition.
e. Combustible liquids must be stored in approved containers.
f. Chemical spills must be cleaned up immediately. This is particularly important for combustible and reactive liquids. Damaged chemical containers and cleanup materials must be properly disposed.

   Note: Exercise care! Information on appropriate personal protective equipment; proper disposal; proper cleanup procedures; required ventilation, etc. is found on the product's SDS.

g. Combustible liquids and trash must be segregated and kept from ignition sources.
h. Keep clear access to fire hydrants as well as portable fire extinguishers.
i. Personnel will be notified by their Supervisor or the competent person of any unusual fire hazard conditions existing on a job site.
j. Good housekeeping, good housekeeping!

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Portable Fire Extinguishers

29 CFR 1926.150 Fire protection

All personnel will receive instruction on portable fire extinguishers to include general principles of use, the hazards involved in the incipient state of firefighting, inspection, maintenance, and location. This training will be given prior to initial job assignment and, at least, annually thereafter.

Fire extinguishers will be visually inspected monthly for adequate charge and will be maintained in proper operating condition.

Fire extinguishers will be serviced and certified by qualified personnel at least annually.

Portable fire extinguisher locations will be clearly identified and easily accessible. They will be distributed as indicated below:

Class	Distribution	Notes
A “A” on a green triangle	75 feet or less travel distance between the employee and the extinguisher	For use on wood, paper, trash, etc.
B “B” on a red square	50 feet or less travel distance between hazard area and the extinguisher	For use on flammable liquid, gas, etc.
C “C” on a blue circle	Based on the appropriate pattern for the existing Class A or Class B hazards	For use on electrical fires
D “D” on a yellow star	75 feet or less travel distance between the combustible metal working area and the extinguisher or other containers or Class D extinguishing agent	For use on combustible metals

Appropriate portable fire extinguishers will be used, as noted above. Supervisors will ensure that at least one extinguisher is on each floor of a project near the stairway.

Using the wrong fire extinguisher on some fires can actually spread the fire. Using a Type-A extinguisher on an electrical fire, for example, could cause serious injury. When a fire occurs, it is imperative to use the proper extinguisher.

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29 CFR 1926.50 Medical services and first aid

Should a medical emergency occur, other than minor scrapes and bruises, and it is serious enough to call for professional medical assistance, the job site supervisor will ensure the Emergency Response Numbers [physicians/ hospital/ambulance] are posted on the job site bulletin board and ensure the injured employee is safely and promptly, transported to professional medical care. The office will be notified as soon as the medical crisis is resolved. The job site supervisor will ensure that in areas where 911 is not available, the telephone numbers of physicians, hospitals, or ambulances are conspicuously posted.

Before workers are sent to a work site, arrangements will be put in place to transport injured or ill workers from the work site to the nearest health care facility. We will ensure that an ambulance service is readily available to the work site when travel conditions are normal. If an ambulance service is not readily available to the work site, or if travel conditions are not normal, we will ensure that other transportation is available that:

a. Is suitable, considering the distance to be traveled and the types of acute illnesses or injuries that may occur at the work site.
b. Protects occupants from the weather.
c. Has systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken.
d. Can accommodate a stretcher and an accompanying person if required.

Before the first aid providers arrive, to the extent possible, clear the way so they can reach the injured employee in the most direct way possible.

If our employees are working at a location that is more than 3 or 4 minutes from medical assistance, we will utilize designated first aid providers who are **trained and licensed in CPR/first aid** & have completed training as required by our bloodborne pathogen program. At least one (1) first aid provider will be on all job sites. Other employees will not expose themselves to blood or other bodily fluids of other employees at any time.

Note: A second first aid provider per crew will be on site if required by the contractor for whom we are working.

Per OSHA, first aid is limited to:

a. Using a non-prescription medication, such as aspirin, at non-prescription strength.
b. Cleaning, flushing or soaking wounds on the surface of the skin;
c. Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™.
d. Using hot or cold therapy.
e. Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.
f. Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).
g. Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister.
h. Using eye patches.

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i. Removing foreign bodies from the eye using only irrigation or a cotton swab.
j. Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.
k. Using finger guards.
l. Using massages.
m. Drinking fluids for relief of heat stress.

If an employee is injured and emergency responders have been called, stay calm and reassure the injured employee that help is coming.

Below is basic first aid for various common job site injuries. Mostly, it is what **not** to do.

MINOR BURNS

(Redness or blisters over a small area)

Flush with cold water; apply a sterile dressing.

Do not use butter on any burn.

Do not break open blisters.

MAJOR BURNS

(White or charred skin; blisters and redness over a large area;
burns on face, hands, or genital area)

Cover with sterile dressing and seek medical attention promptly.

Do not apply salves, ointments or anything else.

Do not break blisters.

CHEMICAL BURNS

(Spilled liquid or dry chemical on skin)

Liquid - Flush with large amounts of water immediately

(Keep water flow gentle).

Dry - Brush as much off as possible before flushing with water. After flushing at least 5 minutes, cover with sterile dressing.

Seek medical attention promptly.

Do not use anything but water on burned area.

Do not break open blisters.

EYE - FOREIGN OBJECT

(Object visible; feeling of something in the eye)

Have patient pull upper eyelid over lower eyelid.

Run plain water over eye.

If object does not wash out, cover <u>both</u> eyes with a gauze dressing.

Seek medical attention promptly.

Do not rub the eye.

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EYE - WOUNDS

(Wound on eyelid or eyeball; pain; history of blow to eye area; discoloration)

Apply loose sterile dressing over both eyes.

Seek medical help immediately.

For bruising, cold compress or ice pack may relieve pain and reduce swelling.

Do not try to remove any embedded object.

Do not apply pressure to eye.

EYE - CHEMICAL BURN

(Chemical splashed or spilled in eye)

Flush immediately with water over open eye for at least 10 minutes

(20 minutes if alkali). It may be necessary to hold patient's eyelid open.

Note: In work situations where a possibility of eye (or body) exposure to corrosive materials exists, suitable facilities for quick-drenching or flushing will be provided in the immediate work area.

Cover both eyes with sterile dressing.

Seek medical help immediately.

Do not put anything but water in eye.

HEAT EXHAUSTION

(Fatigue; weakness; profuse sweating; normal temperature;
pale clammy skin; headache; cramps; vomiting; fainting)

Remove from hot area.

Have victim lay down and raise feet. Apply cool wet cloths.

Loosen or remove clothing.

Allow small sips of water if victim is not vomiting.

HEAT STROKE

(Dizziness; nausea; severe headache; hot dry skin;
confusion; collapse; delirium; coma and death)

Call for immediate medical assistance.

Remove victim from hot area.

Remove clothing. Have victim lay down.

Cool the body (shower, cool wet cloths)

Do not give stimulants.

When dealing with any injury, stay calm and never do anything unless you know what you are doing.

First Aid Kits:

To ensure that first aid kits have the proper contents, the kits will be checked before being sent out to each jobsite by the Safety Program Administrator, Matt Landers.

First aid kits are worthless if not readily accessible. Therefore, they will not be locked up on job sites. They're also not very valuable if the items you need are missing. It's very important that the kits have the proper items and that they are replenished as they are used. First aid kits will be inspected at least weekly by Matt Landers.

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OSHA defers to ANSI for determining what qualifies as an acceptable first aid kit for the workplace. The ANSI standard that addresses first aid kits is ANSI/ISEA Z308.1-2015. Two important topics covered in this standard are what items are required to be included in a first aid kit: Class, and in what kind of container the kit is kept: Type.

Class

There are two classes of first aid kits: Class A and Class B. The two classes are divided based on the type of first aid items included and the number of those items available in the kit. ANSI has defined the classes as follows:

Class A first aid kits are intended to provide a basic range of products to deal with the most common types of injuries encountered in the workplace including: major wounds, minor wounds (cuts and abrasions), minor burns and eye injuries.

Class B first aid kits are intended to provide a broader range and quantity of supplies to deal with injuries encountered in more populated, complex and/or high risk work environments.

The biggest difference between the classes of first aid kits is the amount of items included in the kit. Class B kits have more of each item and are needed at a workplace that has many workers.

Keep in mind that sterile items will be individually wrapped, sealed, and used only once. Other items, such as tape or scissors, can be reused and should be kept clean.

The supplies consumed in first aid kits can be used as a measure of safety. For example, if a kit constantly needs replacement of bandages used for minor cuts, there is an obvious problem. Why are cuts happening in the first place? Actual trends can be established and corrective procedures initiated, such as a protective glove requirement or improved handling practices.

Remember, improper medical treatment can be more dangerous than no treatment at all. Only provide care that you have been trained and certified to do.

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Below are the required contents, items and quantities of Class A and B first aid kits:

Class A	Class B
16 Adhesive Bandage 1 x 3 in.	50 Adhesive Bandage 1 x 3 in.
1 Adhesive Tape 2.5 yd (total)	2 Adhesive Tape 2.5 yd (total)
10 Antibiotic Application 1/57 oz	25 Antibiotic Application 1/57 oz
10 Antiseptic 1/57 oz	50 Antiseptic 1/57 oz
1 Breathing Barrier	1 Breathing Barrier
1 Burn Dressing (gel soaked) 4 x 4 in.	2 Burn Dressing (gel soaked) 4 x 4 in.
10 Burn Treatment 1/32 oz	25 Burn Treatment1/32 oz.
1 Cold Pack 4 x 5 in.	2 Cold Pack 4 x 5 in.
2 Eye Covering w/ means of attachment 2.9 sq. in.	2 Eye Covering w/ means of attachment 2.9 sq. in.
1 Eye/Skin Wash 1 fl oz total	1 Eye/Skin Wash 4 fl. oz. total
1 First Aid Guide	1 First Aid Guide
6 Hand Sanitizer 1/32 oz	10 Hand Sanitizer 1/32 oz
2 pr Medical Exam Gloves	4 pr Medical Exam Gloves
1 Roller Bandage 2 in. x 4 yd	2 Roller Bandage 2 in. x 4 yd
1 Scissors	**1 Roller Bandage 4 in. x 4 yd**
2 Sterile pad 3 x 3 in.	1 Scissors
2 Trauma pad 5 x 9 in.	**1 Splint**
1 Triangular Bandage 40 x 40 x 56 in.	4 Sterile pad 3 x 3 in.
	1 Tourniquet
	4 Trauma pad 5 x 9 in.
	2 Triangular Bandage 40 x 40 x 56 in.

Type

As important as the contents are, the first aid kit won't be very useful if it's not properly protected from the workplace environment. It the supplies are soaked from rain or smashed from being tossed around, they just won't be able to provide any help when needed. ANSI has addressed this by providing guidelines for the containers that first aid kits can be stored in at the workplace.

They are broken down into four categories: **Type I, Type II**, **Type III**, & **Type IV.** Here are the descriptions that ANSI provides for each type.

Type I first aid kits are intended for use in stationary, indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal. Type I first aid kits will have a means for mounting in a fixed position and are generally not intended to be portable.

Note: Typical applications for Type I first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility. First aid cabinets would generally fall into the Type I classification.

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Type II first aid kits are intended for portable use in indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal.

Note: Typical applications for Type II first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility.

Type III first aid kits are intended for portable use in mobile, indoor and/or outdoor settings where the potential for damage of kit supplies due to environmental factors is not probable. Type III kits will have a means to be mounted in a fixed position and will have a water-resistant seal.

Note: Typical applications for Type III first aid kits may include general indoor use and sheltered outdoor use.

Type IV first aid kits are intended for portable use in the mobile industries and/or outdoor settings where the potential for damage to kit supplies due to environmental factors and rough handling is significant. Type IV kits will have a means to be mounted in a fixed position and will meet the performance requirements set forth by ANSI.

Note: Typical applications for Type IV first aid kits may include, but are not limited to, the following: the transportation industry, the utility industry, the construction industry, and the armed forces.

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Housekeeping

Housekeeping? On a job site? What's that all about? It's about safety!

Employees are to maintain a neat and orderly work area *as far as practical*. Housekeeping and general cleanliness have a direct effect on safety and health. Proper housekeeping can prevent slips and falls, allow easy egress in the event of an emergency, prevent falling object injuries, and enhance fire safety. Below listed are general housekeeping rules:

a. Walking/working surfaces will be kept clean, dry, orderly, and sanitary condition.

   Note: Our housekeeping program will be implemented and maintain at all of our work sites.

b. Do not allow construction debris to accumulate.

   Note: Form and scrap lumber with protruding nails, and all other debris, must be kept cleared from work areas, passageways, and stairs, in and around buildings, or other structures.

c. Stored materials will be neatly stacked at the job site.

d. Containers, when not in use, will be sealed.

e. No objects will be left unattended on stairways.

f. Entrances and exits will be properly marked and not blocked.

g. Tools will be properly cleaned and put away after use.

h. Combustible scrap and debris will be removed at regular intervals during the course of construction.

I. Containers will be provided for collecting and separating waste, trash, oily and used rags, and other waste material.

   Note: Containers that are used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. will be equipped with covers. These containers, as well as garbage and other waste, will be disposed of at frequent and regular intervals.

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Sanitation

29 CFR 1926.51 - Sanitation

Potable Water:

From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, it is the most abundant part of you – actually about 65% of you is water.

On construction sites, exertion and heat dictate the need for plenty of water.

Potable water will be available on job sites. If portable containers are used, they will be clearly marked [Potable Water]; capable of being tightly closed; and equipped with a tap. These containers will be used for no other purpose than supplying drinking water. Non-reusable (single service) cups in a sanitary container will be provided drinking as well as a receptacle for disposing of used cups. Employees are reminded of their need for adequate amounts of water.

Non-Potable Water:

Outlets of non-potable water should be clearly identified as such, through appropriate signage, and non-potable water may never be used for drinking, washing, or cooking.

Toilets:

Toilets will be provided at construction sites according to the below table:

Number of Employees	Minimum Number of Facilities
20 or less	1
20 or more or more	1 toilet seat and 1 urinal per 40 workers
200 or more	1 toilet seat and 1 urinal per 50 workers

Toilet facilities would include, unless prohibited by local law:

a. Privies (where their use will not contaminate ground or surface water)
b. Chemical Toilets
c. Recirculating toilets
d. Combustion toilets

Washing Facilities:

Adequate washing facilities will be provided in near proximity to the worksite if employees are working with contaminants that may be harmful to their health such as paint, coatings, or other chemical products. Paper towels and cleansing agents will be provided.

Showers and change rooms will be dictated by specific standards dealing with specific toxic materials (i.e., lead; asbestos).

Eating and Drinking Areas:

No employee will be allowed to consume food or beverages in a toilet room or any area exposed to toxic material.

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Manual Lifting Procedures & Ergonomics

Ergonomics is a word derived from the Greek word *érgon* which means work. Ergonomics involves the design of tools, personal protective equipment, machinery, and even physical layout to reduce the amount repetitive motion, lessen vibration, and to lessen the strain on the muscles and skeletal system of the body. Ergonomics also involves redesigning the way tasks are performed. Ergonomics, properly employed, makes work easier and results in fewer soft tissue injuries.

Prior to manual lifting, a hazard assessment will be performed using our hazard identification & risk assessment procedures.

This entails the supervisor, working with employees who actually will perform the lifting using a worksheet and listing all components of the task. Working together, they will list all things that could go wrong resulting in an accident or injury. Specific steps will be developed to eliminate the probability of an accident or injury. These steps will be transferred to our task analysis form which will be kept on the job site.

Things that could go wrong manually lifting an item could include, but not be limited to:

a. Item is too heavy.
b. Item is too bulky.
c. Item blocks line of sight.
d. Item can cut hands.
e. Surface is slippery.

The order of precedence and effectiveness of hazard control for manual lifting is as follows:

a. Engineering controls.
b. Administrative controls.
c. Personal protective equipment.

Supervisors will inspect and enforce the use of the above controls.

Engineering controls include the following use of mechanical devices such as:

a. Dollies.
b. Hand trucks.
c. Lift assist devices.
d. Jacks.
e. Carts.
f. Conveyors.
g. Lift tables.
h. Increasing the heat, muscles are less likely to cramp in warmer temperatures.

Administrative controls include the following use of mechanical devices such as:

a. Using two (2) persons to perform the lift.
b. Increasing the time between lifts.
c. Lifting training.

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Personal Protective Equipment would include, but not be limited to:

a. Using gloves to address cuts, firm grip and warmth.
b. Appropriate steel toed footwear to address slips and items falling on feet
c. Eye protection to prevent items hitting eyes.
d. Back braces.

Ergonomics & Manual Lifting:

Correct Neutral Postures:

Postures where the body is aligned and balanced while sitting or standing. The head is kept upright and is not turned to either side more than about 30 degrees or tilted forward or backward more than about 15 degrees. When the worker is standing, the torso is not bent more than 10 to 20 degrees from the vertical position and the natural curves of the spine are maintained. The pelvis and shoulders should face straight ahead to avoid twisting the torso. The shoulders are relaxed and knees slightly bent. The arms hang normally at the side, with elbows close to the body. The elbows are not bent more than about 90 degrees and the palms face in toward each other and the center line of the body. The wrists are in line with the forearms and are not bent sideways, forward (towards the palm), or backward (towards the back of the hand.)

When lifting, every attempt should be made to not put stress on the body which is beyond the correct neutral posture.

Proper Lifting Techniques:

Musculoskeletal Injuries are often caused by the obvious -- putting excessive strain on the lower back by lifting an object that is too heavy or awkward, or by bending and/or twisting while lifting.

However, lifting injuries are also caused by less obvious reasons:

a. Poor physical condition
b. Poor posture
c. Poor judgment (lifting, pulling, pushing an object that is obviously too heavy or awkward without seeking assistance or a mechanical lifting device.)

   Note: Where the use of lifting equipment is impractical, two man lifts must be performed.

d. Lack of exercise
e. Excessive body weight

Training will be given in proper lifting techniques. Below are lifting techniques that will reduce the likelihood of injury:

a. Lift objects comfortably, not necessarily the quickest or easiest way.
b. Lift, push, and pull with your legs, not your arms or back.
c. When changing direction while moving an object, turn with your feet, not by twisting at the waist.
d. Avoid lifting higher than your shoulder height.
e. When standing while working, stand straight.
f. When walking, maintain an erect posture; wear slip-resistant, supportive shoes.
g. When carrying heavy objects, carry them close to the body and avoid carrying them in one hand.

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h. When heavy or bulky objects need to be moved, obtain help or use a mechanical aid such as a dolly, hand truck, forklift, etc.
i. When stepping down from a height of more than eight inches, step down backwards, not forward.
j. Lift heavy objects close to the body -- avoid reaching out. The power zone for lifting is close to the body, between mid-thigh and mid-chest height. Comparable to the strike zone in baseball, this zone is where arms and back can lift the most with the least amount of effort.
k. Lift gradually and smoothly. Avoid jerky motions.
l. Maintain a clear line of vision.

Ergonomics & Other Job Site Tasks:

Repetitive wrist motions should not exceed 30° of flexion or extension. A wrist restraint can keep your wrist from exceeding 30° extension. Vibration can be reduced to a minimum be something as simple as proper gloves. Soft tissue damage can be reduced by wearing proper footwear and not continually standing on hard work surfaces.

Investigation of Injuries:

Matt Landers will investigate all injuries caused by improper lifting and, as part of that investigation, incorporate those finding into work procedures to preclude a re-occurrence.

Injuries will be recorded and reported in compliance with 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illnesses.*

A concentrated effort will be made to ensure that the corrective measures **do not create hazards** in and of themselves.

To prevent injuries in the first place, supervisors will periodically evaluate our manual lifting techniques to assess the potential for and prevention of injuries.

As part of our risk assessment process, new operations will be evaluated to engineer our hazards before manual lifting is begun.

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Slips, Trips, and Falls

Slips, trips, and falls are among the most common job site accidents and they are easily preventable. Below are some of the causes of slips, trips, and falls:

a. Running on the job site.
b. Engaging in horseplay.
c. Working off a ladder that is not firmly positioned.
d. Carrying an object that blocks line of vision.
e. Work boots not laced or buckled.
f. Working off a scaffold without safety rails.
g. Using ladders that have oil and grease on the rungs.
h. Not using a handrail on steps.
i. Messy work areas with debris strewn about.
j. Not paying attention to what one is doing.

This list can go on and on, but all of the above are easily preventable by adherence to common safety procedures, common sense, and awareness of potential hazards on the job site.

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Drugs, Alcohol, and Other Prohibited Behaviors

Drug and Alcohol-Free Job Sites

Because the type of work we perform can result in serious injury if employees are not capable of focusing not only on their job task, but their surroundings and others with whom they work. It is our policy to hire only persons free from any evidence of illegal use of controlled substances or other drugs including alcohol.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourage employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't have been reasonably expected to be the result of impairment.

Example: A bee sting that results in an allergic reaction and leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment and thus drug testing would be considered retaliatory or discriminatory.

Prohibited Behaviors

The use, bringing onto company property or job site, possession, concealment, transportation, promotion or sale of the following substances or items by any employee as well as our subcontractors and their employees of the below items:

a. Illegal drugs, unauthorized controlled substances, look-a-likes, designer, synthetic or any other drug which may affect an employee's motor functions or alter a person's working perception.
b. Prescription drugs/over the counter medication except under the following conditions:
    1. The employee will inform his supervisor prior to using any prescription drug or over the counter medication and receive written permission to possess such drug while working on the job.
    2. The prescription vial will be labeled by the dispensing pharmacy and the label will show the employees name, physician, prescription number, date the prescription was filled and the dosage rate. Prescriptions more than 30 days old will not be allowed.
    3. The over the counter medication will be in its original package or container.
    4. The employee may only possess enough medication for his normal shift.
c. Alcoholic beverages.
d. Firearms, weapons, explosives, and ammunition.
e. Unauthorized items such as stolen property or drug paraphernalia.

Smoking

There will be no smoking except in designated smoking areas. Under no circumstances will there be smoking during refueling of vehicles or within 50 feet of flammable materials.

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Postings

On every job site there will be a prominently displayed bulletin board or area for postings. Every employee must be aware of this policy. Certain postings are required as a matter of law in all cases and other postings are required depending on circumstances and types of work being done.

In all cases, the following must be posted to meet OSHA requirements:

a. OSHA Form 3165, *It's the law!*.
b. During the period from 1 February through to April 30, OSHA Form 300A, *Summary of Work-Related Injuries and Illnesses*, must be posted for work-related injuries and illnesses which have occurred during the previous year.
c. Emergency phone numbers and site address for emergency response.

If appropriate, the following must be posted:

a. OSHA citations.
b. Notice of informal hearing conference.
c. Names and location of assigned first aid providers.
d. Air or wipe sampling results.
e. Emergency action plan.

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Incident Investigation and Reporting

Apparently simple accidents may actually be caused by many complex reasons. Example: a worker is using a claw hammer on a scaffold plank more than six feet above the ground. The hammer head breaks off, slides off the scaffold surface, and strikes a worker standing below who is not wearing a hard hat. Why did this accident happen? How can it be prevented? With just the facts presented, the fault would seem to rest with the worker who was struck by the falling object. Accident investigation may reveal other contributing factors by answering questions like:

a. Were hard hats required on the project, were they available, and was this policy enforced by the supervisors?
b. Were precautions taken to prevent objects from falling from above, such toeboards?
c. Did the worker inspect his hammer before use? Was he driving nails – the job for which a claw hammer is designed – or pounding metal beams?
d. Why was the worker directly under the scaffold? Was he authorized to be there? Had a control zone been established? What was he doing when he was hit?

After determining the cause of the above accident, steps can be taken to prevent a re-occurrence. Near-miss mishaps, events which result in no injury or damage, should be investigated because even though the outcomes are different, the causes are the same.

The main purpose of incident investigation is to prevent the same type of incident from reoccurring. An incident investigation will begin immediately after the medical crisis is resolved. The competent person/supervisor on the job site will complete an Incident Investigation Form as soon as feasible. The five questions that must be answered are: Who? What? When? Where? and most importantly, Why did the accident happen?

If the accident is severe, all personnel are authorized to call 911 and/or access a first responder per our posted job site emergency phone lists.

All accidents, incidents, and near-miss incidents will be reported immediately to the supervisor who, in turn, will report this information to Matt Landers.

Matt Landers will ensure that the company for whom we are working is informed of the accident, incident, or near-miss incident as soon as feasible, but no later than 24 hours. Incidents would include, but not be limited to:

a. injuries
b. spills
c. property damage
d. fires
e. explosions
f. vehicle damage

Immediately after medical concerns are addressed, all accidents, incidents and near-miss incidents will be investigated.

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Catastrophic Reporting Requirements:

Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three (3) or more employees as a result of a work-related incident, either in person or by telephone, the OSHA Area Office nearest to the site of the incident will be notified. OSHA may be contracted for this purpose using a toll-free telephone number:

1-800-321-6742.

Incident Investigation:

Matt Landers is responsible for investigating all incidents. An investigating team will be established, & individual members will be given training in their individual responsibilities & incident investigation techniques prior to the occurrence of an incident.

Initial training will be given when assigned to the team and refresher training will be given as needed, but at least bi-annually.

Training will include:

a. Initial identification/assessment of evidence.
    1 As appropriate, a listing of people, equipment, and materials involved and a recording of environmental factors such as weather, illumination, temperature, noise, ventilation, etc. will be gathered.
b. Collection, preservation, and security of evidence.
1. Using notes, photographs, witness statements, flagging, and impounding of documents and equipment, evidence will be collected, preserved, and secured.
c. Collection of witness interviews and statements.
1. The importance of gathering unbiased statements and the possible need for follow-up interviews will be emphasized.
d. Preparation, and preservation, of the written incident report.
1 The written incident report will be prepared using the incident report form which would include a detailed narrative statement of the events leading to the incident. The format of the narrative report may include an introduction, methodology and summary of the incident, the investigation board members names, narrative of the event, findings and recommendations. Photographs, witness statements, drawing, etc. would also be included.
e. Using investigative skills to identify corrective actions, assigning responsibilities for corrective actions, and tracking corrective actions to closure.

An investigative kit will be prepared that contains:

a. Incident Investigation Forms
b. Witness Statement Forms
c. Pens, paper, rulers
d. Barricade tape
e. Camera
f. Small hand tools
g. Marking devises such as flags
h. Tape Recorder
i. Equipment Manuals and Standards

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Per our Bloodborne Pathogen Program, all first aid responders will be qualified and certified and First Aid and CPR.

Per our Emergency Action Plan, persons will be identified, in the event of a major emergency to perform certain tasks to ensure the safety of our personnel as well as the integrity of equipment, facilities, and materials to prevent further loss after immediate rescue has occurred. For example, maintenance personnel should be summoned to assess integrity of buildings and equipment, engineering personnel to evaluate the need for bracing of structures, and special requirements such as safe rendering of hazardous materials or explosives will be employed.

At the conclusion of any accident investigation, a meeting will be held with all team members to review the process and entertain suggestions for improvement. Training will include, but not be limited to, investigation procedures, preserving of evidence, taking appropriate photos of accident scenes, first responder actions and results, witness statements, and use of investigative supplies.

While all accidents must be investigated, the degree to which they are investigated must be commensurate with the level of severity of the incident using a root cause analysis process.

Root cause analysis, in the example on page 1, is a methodology for finding and correcting the most important reasons for the accident. Utilizing scaffolding competent persons and other experts, the root cause may turn out to be lack of scaffold training with emphasis on scaffold erection. Had toeboards been installed, the accident would not have happened and, with enhanced training. future accidents could be avoided.

This answer is different than the obvious conclusion that the accident was caused by the hammer head breaking off and hitting the employee.

Accidents with a high degree of severity certainly need more investigative time and effort than, for example, a minor bruise.

After all is said and done, one of the main purposes of incident investigation is to prevent a re-occurrence particularly in the performance of similar type operations. It is important to communicate to all employees the lessons learned from an incident investigation and make sure they understand the existing or improved policies and/or procedures established as a result of the incident investigations.

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OSHA Forms 300; 300A & 301

As a matter of law, all employers with 11 or more employees **at any one time** in the previous year must maintain OSHA Form 300, Log of Work-Related Injuries and Illnesses, OSHA Form 301, Injury and Illness Incident Report, and OSHA Form 300A, Summary of Work-Related Injuries and Illnesses.

The OSHA Form 300A will be signed by a company official. This signature indicates that the company official is certifying that he/she has examined the OSHA 300 Log and reasonably believes, based on his/her knowledge of the process by which the information was recorded, that the annual summary is correct and complete.

The annual summary will be posted from no later than February 1st through April 30th for the records of the preceding year in a conspicuous place where notices to employees are customarily posted. The annual summary must not be altered, defaced, or covered by other material.

OSHA Forms 300 and 301 are used to record and classify occupational injuries and illnesses. These records would include injuries and illnesses that are:

a. work related
b. a new case; and,
c. meets one of more of the general recording criteria,

see Items to be recorded on OSHA Forms 300, 300 A and 301, below.

The information on the OSHA Form 300 related to employee health and must be used in a manner that protects the confidentiality of the employees to the extent possible. Recordable injuries and illnesses must be entered on OSHA Forms 300 and 301 within seven (7) days of receiving information that a recordable injury or illness has occurred.

Electronic Submission of Records

Effective February 25th, 2019, certain employers are required to electronically submit injury and illness data from their OSHA Form 300A Summary of Work-Related Injuries and Illnesses to OSHA. This includes all employers with 250 or more employees and employers with 20-249 employees who have a NAICS code listed in Appendix A to Subpart E of Part 1904 - Recording and Reporting Occupational Injuries and Illness.

Click here to see Appendix A.

Note: Contact your local worker's compensation office if you're uncertain of your NAICS code.

If LNE Electric is required to submit records electronically, the information from our 300A must be submitted by March 2 of the following year (for example, 2018 data must be submitted by March 2, 2019).

OSHA provides a secure website that offers three options for data submission:

a. Users will be able to manually enter data into a webform.
b. Users will be able to upload a CSV file.
c. Users will have the ability to transmit data electronically via an API if they have an automated recordkeeping system.

Click Here to Access the Injury Tracking Application

Retention of Forms:

Old OSHA Forms 101 and 200, as well as OSHA Forms 300, 300A, and 301, will be retained for five years following the year to which they relate.

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Items to be recorded on OSHA Forms 300, 300A and 301:

Work related injuries and illnesses and fatalities are to be recorded using the criteria found in Part 1904, *Recording and Reporting Occupational Injuries and Illnesses*.

Injuries and illnesses must be recorded if they result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or if the injury or illness involves a significant injury diagnosed by a physician or licensed health care professional even if it does not meet the forgoing conditions.

Note: First aid (which is not reportable) is defined in 1904.7(b)(5)ii.

Employee Involvement:

As an employee of LNE Electric, you have the right and responsibility to report all work-related injuries and illness without the fear of being retaliated against, discriminated against, or terminated from employment.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourages employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't have been reasonably expected to be the result of impairment.

Example: A bee sting that results in an allergic reaction and leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment and thus drug testing would be considered retaliatory or discriminatory.

As a matter of policy, all employees are to report all work-related accidents and injuries immediately to the competent person/supervisor on a job site. The competent person/supervisor will complete an accident investigation form and will forward it to Matt Landers, the Safety Director.

Matt Landers will extrapolate appropriate information for completion of the OSHA Form 300 and complete a review of our policies and procedures to help ensure that there isn't a reoccurrence of the reported injury or illness.

Failure to report injuries or illnesses would be a violation of our company's reporting policy and is not acceptable.

Catastrophic Reporting Requirements:

The following events have to be reported to OSHA:

a. All work-related fatalities
b. All work-related in-patient hospitalizations of one or more employees
c. All work-related amputations
d. All work-related losses of an eye

Our company must report work-related **fatalities within 8 hours of finding out about it.** For any in-patient hospitalization, amputation, or eye loss, we **must report the incident within 24 hours of learning about it.**

Only fatalities occurring within 30 days of the work-related incident must be reported to OSHA. Further, an inpatient hospitalization, amputation or loss of an eye incident must be reported to OSHA only if they occur within 24 hours of the work-related incident.

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There are three options for reporting the event:

a. By telephone to the **nearest OSHA Area Office** during normal business hours. The phone numbers can be found at the following website: **https://www.osha.gov/html/RAmap.html.**
b. By telephone to the 24-hour OSHA hotline (**1-800-321-OSHA** or **1-800-321-6742**).
c. By using OSHA's new means of reporting events electronically. This can be done online at the following website: **https://www.osha.gov/pls/ser/serform.html.**

Information to Be Reported:

When reporting a fatality, in-patient hospitalization, amputation or loss of an eye to OSHA, following information must be reported:

a. Establishment name
b. Location of the work-related incident
c. Time of the work-related incident
d. Type of reportable event (i.e., fatality, in-patient hospitalization, amputation or loss of an eye)
e. Number of employees who suffered the event
f. Names of the employees who suffered the event
g. Contact person and his or her phone number
h. Brief description of the work-related incident

Note: An event does not have to be reported if it:

a. Resulted from a motor vehicle accident on a public street or highway, except in a construction work zone; employers must report the event if it happened in a construction work zone.

b. Occurred on a commercial or public transportation system (airplane, subway, bus, ferry, streetcar, light rail, train).

c. Occurred more than 30 days after the work-related incident in the case of a fatality or more than 24 hours after the work-related incident in the case of an in-patient hospitalization, amputation, or loss of an eye.

Note: We must report an in-patient hospitalization due to a heart attack, if the heart attack resulted from a work-related incident.

Location of OSHA Forms 300 and 301:

As a general rule, the OSHA Forms 300 and 301 will be maintained in our main office. However, in the event that a project is to last more than one year, that job site will be considered a fixed establishment and maintain its own OSHA Forms 300 and 301.

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Incident Rate:

One indication of the success of our safety effort is our “incidence rate”. When bidding a job, our incidence rate could be a determining factor in a successful bid. The incidence rate is determined by the following formula:

N/EH X 200,000 where:

N = number of injuries and/or illnesses

EH = total hours worked by all employees during the calendar year.

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

To find the “Lost Workday Injury Rate” (LWDI), the following formula is used:

WDI Rate = (# LWDI’s X 200,000)/# employee hours worked

LWDI = sum of LWDI’s in reference years

employee hours worked = sum of employee hours in reference years

200,000 = base for 100 full-time equivalent workers

(working 40 hours per week, 50 weeks per year)

When accidents and injuries occur, they have an immediate detrimental impact on those employees involved. Additionally, they have a potential lingering negative impact on our company and our ability to get work.

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Access to Employee Medical Records & Exposure Records

29 CFR 1910.1020 - Access to employee exposure and medical records

All employee exposure records and medical records are under the control of Matt Landers, our Safety Program Administrator.

Exposure Records must be retained for 30 years.

Medical Records must be retained for the duration of employment plus 30 years.

An employee's medical record means: "a record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician."

This would include:

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

Note: An employee's medical record does not include:

a. Physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice, or

b. Records concerning health insurance claims if maintained separately from the employer's medical program and its records, and not accessible to the employer by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.).

c. Records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence.

d. Records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from the employer's medical program and its records.

An employee's employee **exposure record** means a record containing any of the following kinds of information:

a. Environmental (job site) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained.
b. Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs.

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c. Safety data sheets indicating that the material may pose a hazard to human health.
d. In the absence of the above, a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent.
e. Objective Data for Exemption from Requirement for Initial Monitoring.

Employee Information:

Upon first entering into employment, and at least annually thereafter, each employee will be informed of the following:

a. The existence, location, and availability of any records covered by 29 CFR 1910.1020.
b. The person responsible for maintaining and providing access to records (Matt Landers).
c. The employee's rights of access to his/her records.
d. That a copy of 29 CFR 1910.1020 and its appendices will be maintained in safety director's office and made readily available upon request.

Informational materials concerning access to medical records received from or provided by the Assistant Secretary of Labor for Occupational Safety and Health will be distributed to all current employees.

Access to Records:

Employees or their designated representatives will have access to their medical or exposure records within 15 working days of their request, or, if this is not possible, Matt Landers will provide, within 15 working days, the reason for the delay and provide a best estimate of when the records will be available.

Copies of employee medical or exposure records will be provided in a reasonable time, place, and manner and **at no cost to the employee**.

Upon request, Matt Landers will provide access to representatives of the Assistant Secretary of Labor for Occupational Safety and Health employee exposure and medical records and to analysis using exposure or medical records.

Analysis Using Medical or Exposure Records:

"Analysis using exposure or medical records" means any compilation of data or any statistical study based at least in part on information collected from individual employee exposure or medical records or information collected from health insurance claims records, provided that either the analysis has been reported to the employer or no further work is currently being done by the person responsible for preparing the analysis.

Before access is granted to an analysis using medical or exposure records, all personal identifiers must be removed that could reasonable directly identify the employee. Identifiers would include **name, SSN, address, etc.** Identifiers that could indirectly identify the employee will also be removed. These would include date of hire, sex, job title, etc.

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Confidentiality:

Nothing in the OSHA standards is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship, or affect existing legal obligations concerning the protection of trade secret information.

Transfer of Records:

Should we cease to do business, the successor employer will receive and retain all the above medical and exposure records.

Should we cease to do business and there is no successor employer to receive and retain the above medical and exposure records, they will be transmitted to the Director of the National Institute for Occupational Safety and Health (NIOSH).

At the expiration of the retention period for the above medical records, we will notify the Director of the NIOSH at least 3 months prior to the disposal of such records and will transmit those records to the Director of the NIOSH if he requests them within that period.

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Disciplinary Plan

It is expected that all employees, including supervisors, will abide by our safety rules and guidelines not only to protect themselves, but also to protect their fellow workers from harm. Should a safety violation occur, the following steps will be taken by the employee's immediate supervisor:

Minor Safety Violations: Violations which would **not** reasonably be expected to result in serious injury.

a. The hazardous situation will be corrected.
b. The employee will be informed of the correct procedures to follow and the supervisor will ensure that these procedures are understood.
c. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to Matt Landers for a retention period of one year.
d. A repeat occurrence of the same minor safety violation is considered substantially more serious than the first.

Major Safety Violations: Violations which would reasonably be expected to result in serious injury or death.

a. The hazardous situation will be corrected.
b. The employee will be informed of the correct procedures to follow and will impress upon the individual the severity of the violation and the likely consequences should this type of violation be repeated. The supervisor will ensure that the individual understands the correct procedures and will be cautioned that a reoccurrence could result in disciplinary action up to and including discharge.
c. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to Matt Landers for a retention period of one year.

Willful Major Safety Violations: Intentional violation of a safety rule which would reasonably be expected to result in serious injury to the employee or a fellow worker.

a. The hazardous situation will be corrected.
b. The employee will be removed from the job site, the event will be documented and forwarded to Matt Landers, and the employee will be discharged.

Employees are to understand that the primary purpose of documenting safety violations is to ensure that the important business of employee safety is taken seriously and that the potential for injury is reduced to the lowest possible level.

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Schedule of Enforcement Actions
Violations Occurring within a 1 Calendar Year Period:

Minor Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	1 Day Off
2nd	Written Notice	2nd	3 Days Off
3rd	1 Day Off	3rd	Dismissal
4th	2 Days Off		
5th	3 Days Off		
6th	Dismissal		

Major Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	4 Days Off
2nd	2 Days Off	2nd	Dismissal
3rd	4 Days Off		
4th	Dismissal		

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Section II
Site/Job Specific Policies and Procedures

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Abrasive Wheels

29 CFR 1910.215: Abrasive wheel machinery

29 CFR 1926.303 - Ab3rasive wheels and tools

An abrasive wheel is defined as a cutting tool consisting of abrasive grains held together by organic (resin, rubber, shellac or similar bonding agent) or inorganic bonds. Hazards that present themselves during abrasive wheel operations include physical contact with the rotating wheel; destruction of the wheel itself; inhalation of the bonding particles; being struck by flying fragments. All these hazards can be eliminated through adherence to appropriate machine guarding principles, appropriate PPE, and/or respiratory protection.

Immediately before mounting, wheels must be inspected and sounded (ring test) to ensure they have not been damaged. Ensure the spindle speed does not exceed the maximum operating speed noted on the wheel.

Ring Test: The wheel to be tested must be dry and free from sawdust. Wheels should be tapped gently with a light, nonmetallic implement, such as the handle of a screwdriver, or a wooden mallet for heavier wheels. If they sound cracked (dead), they may not be used. It should be noted that organic bonded wheels do not emit the same clear metallic ring as do vitrified and silicate wheels. Tap the wheels about 45° each side of the vertical centerline and about one or two inches from the periphery. Rotate the wheel about 45° and repeat the test. A sound, undamaged wheel will give a clear metallic tone.

Guarding: Abrasive Blades in Portable Circular Saws:

It is important to distinguish between a saw and an abrasive blade because they have different guarding requirements. An abrasive wheel, as defined by **29 CFR 1910.211(b)(14)** and **American National Standards Institute (ANSI) B7.1-1970**, as "a cutting tool consisting of abrasive grains held together by organic or inorganic bonds."

If a wheel is, for example, constructed with bonded, steel fragments arranged in intermittent clusters around the periphery of a steel disc, the steel fragments are too large and sharp to be considered abrasive grains. If these fragments remove material primarily by severing rather than by abrasion, then this would be considered a saw blade and the guarding requirements would be found in *General Requirements,* located here **29 CFR 1926.300**.

If, in fact, cutting is done by the abrasive action of the abrasive grains, guarding requirements are found in *Abrasive Wheels and Tools,* located here **29 CFR 1926.303(b)**.

ANSI B7.1 requires the upper half of the abrasive blade to be guarded when abrasive wheels are installed on portable power-driven circular saws.

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Aerial Lifts

29 CFR 1926.453 - Aerial lifts

Aerial lifts acquired for use which were manufactured on or after January 22, 1973 will have a placard or label affixed which indicates that the lift is designed and constructed in accordance with ANSI standard A92.2-1969. Aerial lifts acquired for use prior to January 22, 1973 may not be used unless modified to meet this standard. Aerial lifts may be modified to perform other than originally designed tasks provided the modifications are certified by the manufacturer or a nationally recognized testing laboratory that the aerial lift conforms with ANSI standard A92.2-1969 and is as safe as before modifications.

Aerial lifts include the following types of vehicle-mounted aerial devices to elevate personnel to jobsites above the ground:

a. Extensible boom platforms
b. Aerial ladders
c. Articulating boom platforms
d. Vertical towers
e. A combination of any of the above

Only authorized persons may operate an aerial lift.

Lift controls and equipment must be inspected and tested each day, prior to use, to determine that they are in a safe working condition.

When working from an aerial lift, you must stand firmly on the floor of the basket or cage, and **use (wear) an approved fall restraint system**. The fall restraint system must be attached to the boom or basket – it may not be attached to any adjacent pole, structure, or other equipment. You may not sit or climb on the edge of the basket; also **do not** use planks, ladders, or other devices for a work position.

Load limits set by the manufacturer must never be exceeded.

The brakes must be set. When outriggers are used, they will be positioned on pads or a solid surface.

Aerial lifts must not be moved with personnel in the basket unless it is designed for this type of operation. Aerial lifts designed as personnel movers must have controls that are clearly marked as to their use and the lower controls must be able to override the upper controls. Except in an emergency, the lower controls will not be used unless permission has been granted by the persons in the lift.

It is required that the vehicle have a “reverse signal alarm” audible above the surrounding noise level **or** a ground-guide (spotter), using standard hand signals, when backing up. The vehicle will be backed up only when the spotter signals that it is safe to do so. Using a ground-guide provides a substantially higher level of safety than a “reverse signal alarm” because the vehicle can be guided to an exact location with assurance that there is sufficient clearance from objects, and, most importantly, no person is in harm’s way. Special attention will be given to avoiding contact with electrical lines.

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Aerial Lifts & Live-Line Bare-Hand work

29 CFR 1926.950 - General Requirements

29 CFR 1926.955 - Overhead lines

Before using the live-line bare-hand technique on energized high-voltage conductors or parts, a check will be made of:

a. The voltage rating of the circuit on which the work is to be performed.
b. The clearances to ground of lines and other energized parts on which work is to be performed.
c. The voltage limitations of the aerial lift equipment to be used.

Only equipment designed, tested, and intended for live-line bare-hand work will be used.

All work will be personally supervised by a person trained and qualified to perform live-line bare-hand work.

The automatic reclosing feature of circuit interrupting devices will be made inoperative where practical before working on any energized line or equipment.

Work will not be performed during the progress of an electrical storm in the immediate vicinity.

A conductive bucket liner or other suitable conductive device will be provided for bonding the insulated aerial device to the energized line or equipment.

a. The employee will be connected to the bucket liner by use of conductive shoes, leg clips, or other suitable means.
b. Where necessary, adequate electrostatic shielding for the voltage being worked on or conductive clothing will be provided.

Only tools and equipment intended for live-line bare-hand work may be used. Tools and equipment must be kept clean and dry. Before the boom is elevated, the outriggers on the aerial truck will be extended and adjusted to stabilize the truck and the body of the truck will be bonded to an effective ground or barricaded and considered as energized equipment. Before moving the aerial lift into the work position, all controls (ground level and bucket) will be checked and tested to determine that they are in proper working condition.

Arm current tests must be made before starting work each day, each time during the day when higher voltage is going to be worked on, & when changed conditions indicate a need for additional tests. Aerial buckets used for bare-hand live-line work will be subjected to an arm current test. This test will consist of placing the bucket in contact with an energized source equal to the voltage to be worked upon for a minimum time of three (3) minutes. The leakage current will not exceed 1 microampere per kilo-volt of nominal line-to-line voltage. Work operations will be suspended immediately upon any indication of a malfunction in the equipment.

All aerial lifts to be used for live-line bare-hand work will have dual controls (lower and upper).

The upper controls will be within easy reach of the employee in the basket. If a two basket type lift is used, access to the controls will be within easy reach from either basket.

The lower set of controls will be located near base of the boom; that will permit over-ride operation of equipment at any time.

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Ground level lift control will not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

Before the employee contacts the energized part to be worked on, the conductive bucket liner will be bonded to the energized conductor by means of a positive connection which will remain attached to the energized conductor until the work on the energized circuit is completed.

The minimum clearance distances for live-line bare-hand work will be as specified in the table below. These minimum clearance distances will be maintained from all grounded objects and from lines and equipment at a different potential than that to which the insulated aerial device is bonded unless such grounded objects or other lines and equipment are covered by insulated guards. These distances will be maintained when approaching, leaving, and when bonded to the energized circuit.

When approaching, leaving, or bonding to an energized circuit, the minimum distances in the table below will be maintained between all parts of the insulated boom assembly and any grounded parts (including the lower arm or portions of the truck).

Minimum Clearance Distances for Live Line Bare-Hand Work (Alternating Current)		
Voltage Range	Distance in feet & inches for maximum voltage	
Kilovolts	Phase to Ground	Phase to Phase
2.1 to 15	2'0"	2'0"
15.1 to 35	2'4"	2'4"
35.1 to 46	2'6"	2'6"
46.1 to 72.5	3'0"	3'0"
72.6 to 121	3'4"	4'6"
138 to 145	3'6"	5'0"
161 to 16	3'8"	5'6"
230 to 242	5'0"	8'4"
345 to 362	7'0" [1]	13'4" [1]
500 to 552	11'0" [1]	20'0" [1]
700 to 765	15'0" [1]	31'0" [1]
Footnote[1]: For 345-362 kV, 500-552 kV, and 700-765 kV, the minimum clearance distance may be reduced provided the distances are not made less than the shortest distance between the energized part and the grounded surface.		

When positioning the bucket alongside an energized bushing or insulator string, the minimum line-to-ground clearances of the above table must be maintained between all parts of the bucket and the grounded end of the bushing or insulator string.

a. Handlines between buckets, booms, and the ground are prohibited.
b. No conductive materials over 36 inches long will be placed in the bucket; except for appropriate length jumpers, armor rods, and tools.
c. Nonconductive-type handlines may be used from line to ground when not supported from the bucket.

The bucket and upper insulated boom will not be overstressed by attempting to lift or support weights in excess of the manufacturer's rating.

a. A minimum clearance table, as shown in the above table, must be printed on a plate of durable nonconductive material; and mounted in the bucket, or its vicinity, so as to be visible to the operator of the boom.
b. Insulated measuring sticks should be used to verify clearance distances.

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29 CFR 1926.152 - Flammable and combustible liquids

Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids. Approved safety cans or Department of Transportation approved containers will be used for handling and use of flammable liquids in quantities of 5 gallons or less.

Note: The above does not apply to flammable liquid materials which are highly viscid (extremely hard to pour) which may be used and handled in their original shipping containers.

Note: For quantities of one gallon or less, the original container may be used for storage, use and handling.

Flammable or combustible liquids may not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

Inside a facility, no more than 25 gallons of flammable or combustible liquids may be stored in a room outside of an approved storage cabinet.

Gasoline:

General Information

Because most persons use or indirectly handle gasoline on a regular basis – from filling up automobiles to lawn mowers – the hazards presented by this product may have become obscure. Just because you are familiar with gasoline, never lose sight of the lethal hazards that it may contain.

Gasoline is a flammable liquid which means it has a flash point of less than 100ºF. The actual flash point – lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air – of gasoline is -45ºF. The auto-ignition temperature – the temperature at which, with sufficient oxygen, gasoline will ignite on its own and burn – is 536ºF.

Gasoline has a specific gravity – the weight of the gasoline compared to the weight of an equal volume of water – of 0.73. Further, gasoline has a negligible solubility in water. Basically, what the above means is that if water is used to extinguish a gasoline fire, it will only spread it because the gasoline will float on the water and continue to give off a vapor and form a flammable mixture with air. Gasoline fires must be fought with an extinguisher that is rated for Class B fires such as carbon dioxide, dry chemical, or foam. It should be noted that water spray may be used to cool containers that may be exposed to the heat of the fire to prevent an explosion.

Conditions to avoid: heat, flame, & sources of ignition

Materials to avoid: strong oxidizers

Health hazard information: routes of entry: inhalation, skin, ingestion

Signs & Symptoms of Overexposure: headache, nausea, drowsiness, breathlessness, fatigue, convulsions, loss of conscience, dermatitis

If there is a spill, notify emergency response personnel, evacuate area, remove ignition sources, and build a dike to contain flow – do not flush to sewer or open water. Pick up with inert absorbent and place in closed container for disposal.

Gasoline is a carcinogen – a cancer causing agent.

General Rules: Post “No Smoking” signs around gasoline storage and ensure that it is enforced. Use only approved plastic or metal containers for portable gasoline carriers. They must not contain more than 5 gallons.

Double check with local ordinances for storage requirements.

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Company Vehicles

Note: The below applies only to employees who DO NOT operate a commercial motor vehicle (CMV) in interstate or intrastate commerce.

Note: ALL employees who operate motor vehicles receive training on safe operation.

Only authorized employees may operate, in the course of their work, any company-owned motor vehicle.

Prior to authorization, the employee must possess a valid and current license to operate the vehicle. Matt Landers, or authorized representative, will ensure that the employee has demonstrated his/her ability to operate the motor vehicle in a safe and competent manner.

Under no circumstances may any motor vehicle be operated under the influence of alcohol, illegal drugs, or prescription or over-the-counter drugs medications that may impair their driving skills.

When driving over the road vehicles, employees will ensure that the vehicle registration and proof of insurance is within the vehicle. In the event of an accident, Matt Landers will be notified **immediately** after all potential injuries are addressed and a police report is filled out. Employees must report all traffic violations to Matt Landers and they (employees) are responsible for paying all penalties imposed by law.

Loads in vans and trucks will be properly secured (strapped or blocked) to prevent any shift or movement and care will be taken to not exceed the vehicles weight limits.

All company motor vehicles will be maintained in safe operating condition and in accordance with the manufacturer's recommended maintenance schedule.

Before use, a walk around inspection will be performed by the operator checking tires (tread depth and pressure), glass (chips and cracks), horn and lights, and general vehicle condition. **No vehicle will be operated that is not in safe mechanical condition.**

It is expected that the below safe vehicle operation/driving procedures will be followed at all times:

a. Seat belts will be worn by all occupants at all times while the vehicle is in motion
b. Safe distance (one vehicle length per 10 MPH) will be maintained
c. Posted speed limits will not be exceeded
d. During fuel stops, all fluids will be checked, and the windows, headlights and taillights will be cleaned
e. Constant attention will be maintained by always being aware of road conditions and surrounding vehicles

Note: Unnecessary distractions will not be permitted such as using hands to dial or receive cell phone calls or changing radio stations while the vehicle is in motion. Hands free cell phone use is allowed.

Before backing up any vehicle, check behind and blow horn for the safety of others.

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Compressed Air

29 CFR 1910.101 - Compressed gases (general requirements)
29 CFR 1910.242 - Hand and Portable Powered Tools and Other Hand-Held Equipment
29 CFR 1910.169 - Air Receivers
29 CFR 1926.302 - Tools - Power-operated hand tools
29 CFR 1926.306 - Air Receivers

Prior to using compressed air, employees will receive training in:

a. Safe use of compressed air.
b. Pneumatic power tools.
c. Inspection of compressed gas cylinders

Safe Use of Compressed Air:

The below applies to compressed air receivers, and other equipment used in providing and utilizing compressed air for performing operations such as cleaning, drilling, hoisting, and chipping.

a. Air receivers will be so installed that all drains, handholes, and manholes therein are easily accessible. Under no circumstances will an air receiver be buried underground or located in an inaccessible place.
b. A drain pipe and valve will be installed at the lowest point of every air receiver to provide for the removal of accumulated oil and water. Adequate automatic traps may be installed in addition to drain valves. The drain valve on the air receiver will be opened and the receiver completely drained frequently and at such intervals as to prevent the accumulation of excessive amounts of liquid in the receiver.
c. Every air receiver will be equipped with an indicating pressure gauge (so located as to be readily visible) and with one or more spring-loaded safety valves. The total relieving capacity of such safety valves will be such as to prevent pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent.
d. No valve of any type will be placed between the air receiver and its safety valve or valves.
e. Safety appliances, such as safety valves, indicating devices and controlling devices, will be constructed, located, and installed so that they cannot be readily rendered inoperative by any means, including the elements.
f. All safety valves will be tested frequently and at regular intervals to determine whether they are in good operating condition.

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Compressed Gas Cylinders

29 CFR 1926.350 - Gas welding and cutting

Compressed Gas Cylinders Use:

Compressed gas cylinders are used on many job sites – the most common being oxygen and acetylene for welding.

Failure to follow basic safety procedures could result in serious injuries such as:

a. Flash burn – due to explosion.
b. Fragment impalement – due to explosion.
c. Compression of the foot – due to mishandling of tanks.
d. Inhalation of hazardous gases – due to leakage.

Basic safety procedures for compressed gas cylinders:

a. Cylinders must remain upright and chained to a substantial support or cart when in use.
b. Wear appropriate personal protective equipment for the job – such as steel toed shoes, apron, goggles, gloves, helmet, etc.
c. Read and understand the SDS for the gas being used and know the location of the SDS in case of an emergency.
d. Have appropriate fire extinguisher readily available
e. To release the gas, open the cylinder valve slowly – standing away from the face and back of the gage – and leave the opening tools in place (on the valve stem) for quick shut-off in the event of an emergency.
f. Ensure cylinders valves, regulators, couplings, and hose are free of oil and grease and ensure all connections are tight.
g. When using oxygen-fuel systems, use flashback arrestors and reverse-flow check valves to prevent flashback.
h. Keep cylinders away from open flames and sources of heat.
i. Cylinders are never allowed in confined spaces.
j. Do not alter or attempt to repair safety devices or valves.
k. Remove the regulators when: a) moving cylinders; b) work is completed; and c) cylinders are empty.
l. Take care to prevent combustible materials from exposure to welding or cutting operations.
m. All hose in use, carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion, or be in any way harmful to employees, will be inspected at the beginning of each working shift. Defective hose will be removed from service.

All employees who use compressed gas cylinders will be trained in their proper storage, handling, and use.

Specific requirements for compressed gas cylinders use include:

a. Compressed gas cylinders will be clearly marked to identify the gas contained therein. Gas identification must be stamped or stenciled on the gas cylinder or a label affixed. No gas cylinder will be accepted for use that does not legibly identify its content by name.

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b. Visual or other inspections will be performed by the competent person on site to ensure the compressed gas cylinders are in a safe condition.
c. Compressed gas cylinders will be inspected to ensure they are equipped with the correct regulator. Before use, regulators and cylinder valves will be inspected to ensure they are free from oil, dirt, and solvents.
d. Compressed gas cylinders will have valve protectors in place when not in use or connected for use.
e. When a cylinder cap cannot be removed by hand, the cylinder will be tagged “Do Not Use” and returned to the designated storage area for return to the vendor.
f. The user of the compressed gas cylinders will use only the tools supplied by the provider to open and close cylinder valves.
g. Valves will be closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.
h. Leaking cylinders will be moved to an isolated, well-ventilated area, away from ignitions sources.

Note: Soapy water will be used to detect the exact location of the leak. If the leak is at the junction of the cylinder valve and cylinder, do not attempt to repair it. The supplier will be contacted and asked for proper response instructions.

i. No person other than the gas supplier will attempt to mix gases in a cylinder. No one except the owner of the cylinder or person authorized by him, will refill a cylinder. No one will use a cylinder's contents for purposes other than those intended by the supplier. All cylinders used will meet the Department of Transportation requirements published in 49 CFR Part 178, Subpart C, Specification for Cylinders.
j. Hoses and connections will be inspected regularly for damage. Hoses should be stored in cool areas and protected from damage.
k. No damaged or defective cylinder will be used.

Compressed Gas Cylinders Storage:

a. Cylinders must be secured at all times in such a way as to avoid them being knocked over or damaged. They must be stored in a vertical position. They must be segregated based on contents. 20 feet should be maintained between oxidizers and flammables or firewalls erected at least 5 feet high with a fire rating of 30 minutes.
b. Cylinders must be protected from damage, corrosion, sunlight.
c. Cylinders must be stored in well protected, well ventilated, dry locations away from sunlight. Cylinders will never be kept in unventilated enclosures such as lockers or cupboards.
d. Cylinders must be stored away from stairs, elevators, and gangways.
e. Clearly designated and labeled separate storage area will be provided for full and empty cylinders.
f. Empty cylinders that are no longer needed must be marked as “MT” and dated when empty. Empty cylinders must be handled as carefully as full cylinders.
g. Cylinders will be capped when they are not being used.

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Transportation of Compressed Gas Cylinders:

a. Compressed gas cylinders must be transported in a vertical secured position using a cylinder basket or cart.
b. Regulators should be removed, and cylinders capped before movement.
c. Cylinders may never be rolled. Cylinders should not be dropped or permitted to strike violently.
d. Valve protection caps will be in place and secured for cylinder storage, moving and transporting.
e. Protective caps are not to be used to lift cylinders.
f. Cylinders will be moved by tilting and rolling them on their bottom edges. They will not be intentionally dropped, struck, or permitted to strike each other violently.

Inspection of Compressed Gas Cylinders:

We will determine that compressed gas cylinders under our control are in a safe condition to the extent that this can be determined by visual inspection. Visual and other inspections will be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR parts 171-179 and 14 CFR part 103).

Where those regulations are not applicable, visual and other inspections will be conducted in accordance with Compressed Gas Association Pamphlets C-6-1968 and C-8-1962, which is incorporated by reference as specified in Sec. 1910.6.

Note: Compressed gas cylinders, portable tanks, and cargo tanks will have pressure relief devices installed and maintained in accordance with Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963, which is incorporated by reference as specified in Sec. 1910.6.

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Delivery Crane Trucks

Note: The below information is applicable to the following crane types and operations:

1. **Articulating/knuckle-boom truck cranes that deliver material to a construction site when used to transfer materials from the truck crane to the ground, without arranging the materials in a particular sequence for hoisting.**
2. **Articulating/knuckle-boom truck cranes that deliver material to a construction site when the crane is used to transfer building supply sheet goods or building supply packaged materials from the truck crane onto a structure, using a fork/cradle at the end of the boom, but only when the truck crane is equipped with a properly functioning automatic overload prevention device. Such sheet goods or packaged materials include but are not limited to: sheets of sheet rock, sheets of plywood, bags of cement, sheets or packages of roofing shingles, and rolls of roofing felt.**

Note: The above articulating/knuckle-boom crane exclusion does not apply when it is used to 1) hold, support or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure; 2) when the material being handled is a prefabricated component such as precast concrete members or panels, roof trusses, prefabricated building sections such as, but not limited to: floor panels, wall panels, roof panels, roof structures, or similar items; and, 3) when the material being handled by the crane is a structural steel member (for example, steel joists, beams, columns, steel decking (bundled or unbundled) or a component of a systems-engineered metal building.

All other crane operations fall under *Subpart CC—Cranes and Derricks in Construction*, located here **29 CFR 1926.1400**

Cranes, like all pieces of heavy equipment, if not properly operated, inspected and maintained, have a potential for causing major bodily injury or property damage. Care must be taken in all facets of crane operation.

Not only do cranes require a thorough annual inspection (a record of the dates and results of these inspections must be maintained) they require inspection prior to each use and even during use by a competent person.

All rated load capacities recommended operating speeds, and special hazard warnings or instructions must be readily visible to the operator of the crane.

While cranes easily have the lifting ability to hoist employees on a personnel platform, this is **absolutely prohibited** except in cases when the erection, use, and dismantling of conventional means of reaching the worksite would be more hazardous or is not possible because of structural design or worksite conditions. A conventional means would include: a personnel hoist, ladder, stairway, aerial lift, and elevating work platform or scaffold.

It is absolutely imperative that the possibility of electrocution be totally eliminated. This can be accomplished by adhering to the safe distances from various currents noted in **The Control of Hazardous Energy (Lockout/Tagout)**, located at **29 CFR 1910.147**.

Dangers associated with cranes include numerous moving parts. These dangers can be minimized or eliminated by ensuring that all guards are in place and not tampered with.

Care must be taken to ensure that areas within the swing radius, of the rear of the rotating superstructure of the crane, are barricaded to prevent a person from being struck or crushed.

All employees must keep clear of loads that are about to be lifted as well as suspended loads.

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When using slings made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene), the following safe operating practices will be observed:

a. Slings will not be shortened with knots or bolts or other makeshift devices.
b. Sling legs will not be kinked.
c. Slings used in a basket hitch will have the loads balanced to prevent slippage.
d. Slings will be padded or protected from the sharp edges of their loads.
e. Hands or fingers will not be placed between the sling and its load while the sling is being tightened around the load.

Hand signals used to guide the crane operator will be consistent with the ANSI standard for the type of crane in use and an illustration of the signals must be posted at the job site.

Care must be taken while actually operating the crane in hoisting applications as well as when relocating the crane superstructure.

The competent person on site will ensure that the flooring on which equipment may be placed is substantial enough to safely hold the weight of the load. If the strength of the floor is unknown and/or cannot be determined, a professional engineer will determine the pounds per square foot required and, if necessary, the appropriate shoring to be installed to sustain the weight.

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Disposable Respirators

OSHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by OSHA standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of 29 CFR 1910.134 Appendix D, printed below.

By insisting that these employees sign the tear-off employee handbook acknowledgment form, you can protect your company from OSHA citation for violating this requirement.

All disposable respirators, such as Moldex, 3M, Wilson, North Safety, etc. must be marked with the manufacturer's name, the part number, the protection provided by the filter, and "NIOSH".

Disposable filters are particulate respirators. They are also known as "air-purifying respirators" because they protect by filtering particles out of the air you breathe.

The below outlines the types of approved disposable respirators and their description:

N95 Filters at least 95% of airborne particles.	Not resistant to oil.
N99 Filters at least 99% of airborne particles.	Not resistant to oil.
N100 Filters at least 99.7% of airborne particles.	Not resistant to oil.
R95 Filters at least 95% of airborne particles.	Somewhat resistant to oil.
P95 Filters at least 95% of airborne particles.	Strongly resistant to oil.
P100 Filters at least 99.7% of airborne particles.	Strongly resistant to oil.

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer's instructions.

Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.

Standard Number: 1910.134 App D

Standard Title: (Mandatory) Information for Employees Using Respirators When Not Required Under 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, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following: 1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations. 2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators.

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A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. 3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke. 4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

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29 CFR 1926.950 - General
29 CFR 1926.951 - Medical services and first aid
29 CFR 1926.952 - Job briefing
29 CFR 1926.953 - Enclosed spaces
29 CFR 1926.954 - Personal protective equipment
29 CFR 1926.955 - Portable ladders and platforms
29 CFR 1926.956 - Hand and portable power equipment
29 CFR 1926.957 - Live-line tools
29 CFR 1926.958 - Materials handling and storage
29 CFR 1926.959 - Mechanical equipment
29 CFR 1926.960 - Working on or near exposed energized parts
29 CFR 1926.961 - Deenergizing lines and equipment for employee protection
29 CFR 1926.962 - Grounding for the protection of employees
29 CFR 1926.963 - Testing and test facilities
29 CFR 1926.964 - Overhead lines and live-line barehand work
29 CFR 1926.965 - Underground electrical installations
29 CFR 1926.966 - Substations
29 CFR 1926.967 - Special conditions
29 CFR 1926.968 - Definitions

When erecting new electric and distribution lines, as well as when altering, converting, or improving them, we will follow the guidelines contained in **29 CFR 1926, subpart V,** which contains the standards list above. All persons are encouraged to read this standard and resolve any questions regarding safety with Matt Landers, our safety program administrator.

The competent person will ensure that all persons are aware of the major hazards that present themselves on any job site. The two most common hazards involve:

a. Electrical shock/electrocution
b. Falls

Below are guidelines to eliminate the above hazards. No person is to perform any task involving electric and distribution lines unless they are absolutely sure of the safety procedures to follow. If in doubt, get clarification from the competent person. All employees are encouraged to review the safety standards that apply to electric & distribution lines.

Electrical Shock/Electrocution

Electrical equipment and lines must be assumed to be energized until proven to be de-energized. Operating voltages of equipment and lines must be determined before working on or near energized parts.

One can avoid the hazards of electricity by:

Determining, prior to starting work, the voltages one will be working with, the condition of equipment, de-energizing the line or equipment, wearing the appropriate PPE, maintaining the prescribed distance, and using the appropriate tools.

No employee is permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown below unless:

a. The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved will be considered insulation of the employee from the energized part), **or**

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b. The energized part is insulated or guarded from the employee and any other conductive object at a different potential, **or**

c. The employee is isolated, insulated, or guarded from any other conductive object(s), as during live-line bare-hand work.

Minimum Clearance Distances for Live Line Bare-Hand Work (Alternating Current)	
Voltage range in kilovolts	Minimum working and clear hot stick distance [1]
2.1 to 15	2'0"
15.1 to 35	2'4"
35.1 to 46	2'6"
46.1 to 72.5	3'0"
72.6 to 121	3'4"
138 to 145	3'6"
161 to 16	3'8"
230 to 242	5'0"
345 to 362	7'0" [2]
500 to 552	11'0" [2]
700 to 765	15'0" [2]
Footnote[1]: The minimum clear hot stick distance is that for the use of live-line tools held by linemen when performing live-line work.	
Footnote[2]: For 345-362 kV, 500-552 kV, and 700-765 kV, the minimum clearance distance may be reduced provided the distances are not made less than the shortest distance between the energized part and the grounded surface.	

When de-energizing lines and equipment operated in excess of 600 volts, and the means of disconnecting from electric energy is not visibly open or visibly locked out, a control of hazardous energy program will be implemented which, at the minimum, includes:

a. Clearly identifying and isolating all sources of voltage (hazardous energy).

b. Notification and assurance from the designated employee will be obtained assuring that:

   1. All switches and disconnectors through which electric energy may be supplied to the particular section of line or equipment to be worked have been de-energized.
   2. All switches and disconnectors are plainly tagged indicating that employees are at work and, if design allows, they are rendered inoperable.
   3. After all designated switches and disconnectors have been opened, rendered inoperable, and tagged, visual inspection or tests will be conducted to insure that equipment or lines have been de-energized.
   4. Protective grounds will be applied on the disconnected lines or equipment to be worked on.

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5. Guards or barriers will be erected as necessary to adjacent energized lines.
6. When more than one independent crew requires the same line or equipment to be de-energized, a prominent tag for each such independent crew will be placed on the line or equipment by the designated employee in charge.
7. Upon completion of work on de-energized lines or equipment, each designated employee in charge will determine that all employees in his crew are clear, that protective grounds installed by his crew have been removed, and he will report to the designated authority that all tags protecting his crew may be removed.

When a crew working on a line or equipment can clearly see that the means of disconnecting from electric energy are visibly open or visibly locked-out, then:

a. Guards or barriers will be erected as necessary to adjacent energized lines.
b. Upon completion of work on de-energized lines or equipment, each designated employee in charge of a crew will determine that all employees in the crew are clear, the protective grounds installed by the crew have been removed, and he/she will report to the designated authority that all tags protecting his crew may be removed.

All live-line tools will be visually inspected before use each day. Prior to use, tools must be wiped clean. Tools with apparent hazardous defects must be tagged and removed from service until tested with portable or laboratory testing equipment.

All rubber insulating equipment will be visually inspected prior to use and an “air test” will be performed on rubber gloves prior to use.

Hard hats for those who have possible exposure to electrical shock or burns must be manufactured in accordance with the provisions of **ANSI Z89.2-1971**, Industrial Protective Helmets for Electrical Workers, Class B.

Tools, tape, straps, lifelines, belts, hoses, and ladders must be non-conductive.

Only live-line tool poles having a manufacturer's certification to withstand the following minimum tests will be used:

a. 100,000 volts per foot of length for 5 minutes when the tool is made of fiberglass
b. 75,000 volts per foot of length for 3 minutes when the tool is made of wood

When working on energized lines with live-line tools, insulating high voltage gloves must be worn (and other insulating protective equipment, as required) during the operation of switching, fusing, or disconnecting devices and energizing or de-energizing oil filled electrical equipment that is being worked on. Proper cross-arm extensions or ropes will be used to hold an energized conductor clear.

When ropes or blocks and ropes are used under strain, they must be securely tied off. When tied off to a vehicle, the vehicle must be chocked with the brakes set.

Portable electric hand tools will be:

a. Equipped with a three-wire cord having the ground wire permanently connected to the tool frame and means for grounding the other end, or
b. Of the double insulated type and permanently labeled as "Double Insulated", or
c. Connected to the power supply by means of an isolating transformer, or other isolated power supply

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Pneumatic tools which are used on or around energized lines or equipment will have an accumulator on the compressor to collect moisture.

Hydraulic tools may have a switch that has a lock-on control, provided that the “on-off” switch may be turned off by a single motion of the finger that turned it on, similar to drills and other equipment.

Chain saws, circular saws, and similar equipment will have switches that turn off when released.

Aerial lift trucks, when working near energized lines or equipment, must be grounded or barricaded and be considered as energized equipment, or the aerial lift truck must be insulated for the work being performed.

Equipment or material will not be passed between a pole or structure and an aerial lift while an employee working from the basket is within reaching distance of energized conductors or equipment that are not covered with insulating protective equipment.

Mechanical equipment, including derrick trucks, cranes, and other lifting equipment, unless certified for work on the proper voltage, must not operate any closer to energized line or equipment as stated in the “**Alternating Current - Minimum Distances**” chart unless:

a. An insulated barrier is installed between the energized part and the mechanical equipment, **or**
b. The mechanical equipment is grounded, **or**
c. The mechanical equipment is insulated, **or**
d. The mechanical equipment is considered as energized

In all cases, conductors and equipment will be treated as energized until tested, or otherwise determined to be de-energized, or until grounded. Ensure there is no possibility of inducing voltages or contact with energized lines.

When attaching grounds, the ground end will be attached first, and the other end will be attached and removed by means of insulated tools or other suitable devices. When removing grounds, the grounding device will first be removed from the line or equipment using insulating tools or other suitable devices. Grounds will be placed between the work location and all sources of energy and as close as practicable to the work location. Grounds may be temporarily removed only when necessary for test purposes and extreme caution will be exercised during the test procedures.

When grounding electrodes are utilized, such electrodes will have a resistance to ground low enough to remove the danger of harm to personnel or permit prompt operation of protective devices.

Grounding to tower will be made with a tower clamp capable of conducting the anticipated fault current.

A ground lead, to be attached to either a tower ground or driven ground, will be capable of conducting the anticipated fault current and will have a minimum conductance of No. 2 AWG copper.

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Falls:

Body belts with straps or lanyards used for working on poles, towers or other structures will be inspected daily before use.

Prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection will be made to determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected.

Where poles or structures may be unsafe for climbing, they will not be climbed until made safe by guying, bracing, or other adequate means.

Before installing or removing wire or cable, strains to which poles and structures will be subjected will be considered and necessary action taken to prevent failure of supporting structures.

Gaffs on climbers must be kept within safe length limits (1¼", minimum), properly shaped, and sharp.

Safety straps must be secured to both D-rings on the body belt before weight is placed. Never attach one safety strap to the D-ring and the other to another object for support.

When two or more employees are to work on the same pole, the first must reach a secure position before the second climbs. They must descend the pole one at a time.

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Electrical Work - Workplace Safety

29 CFR 1910.332 - Training
29 CFR 1910.333 - Selection and use of work practices
29 CFR 1926.402 - Applicability
29 CFR 1926.403 - General requirements
29 CFR 1926.404 - Wiring design and protection
29 CFR 1926.408 - Special systems
29 CFR 1926.416 - General requirements
29 CFR 1926.449 - Definitions applicable to this subpart
29 CFR 1926.960 - Working on or near exposed energized parts
Appendix B to Subpart V of Part 1926-Working on Exposed Energized Parts
NFPA 70E - Standard for Electrical Safety in the Workplace

No electrical work will be performed on electric distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices will be locked out and suitably tagged by the persons who perform such work, except that in cases where locking out is not possible, such devices will be opened and suitably tagged by such persons. Locks or tags will be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

Note: Reference our Personal Protective Equipment in this program, as well as 29 CFR 1910.335. Each employee who may need to wear PPE must be properly trained. Retraining will be conducted when the workplace changes make the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.

The alerting techniques we will use to warn and protect employees from hazards which could cause injury due to electric shock, burns or failure of electric equipment parts include the use of safety signs and tags, barricades & attendants.

As mentioned in our PPE Program, such protective equipment will be periodically inspected and/or tested.

If the insulating capability of protective equipment may be subject to damage during use, the insulating material will be protected, example: an outer covering of leather used for the protection of rubber insulating material.

Employees will wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.

Employees will wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion.

Each employee will use insulated tools or handling equipment if they might make contact with conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material will be protected.

Ropes and handlines used near exposed energized parts will be nonconductive.

Protective shields, protective barriers, or insulating materials will be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts. When normally enclosed live parts are exposed for maintenance or repair, they will be guarded to protect unqualified persons from contact with the live parts.

We will ensure that our employees only work around electrical equipment that is free from recognized hazards that are likely to cause death or serious physical harm.

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Additionally, we will only use electrical equipment that has the manufacturer's name, trademark, or other descriptive marking that provides the voltage, current, wattage, or other ratings as necessary. The marking must be of sufficient durability to withstand the environment involved.

Only qualified or trained personnel may perform electrical work. All entrances to rooms and other guarded locations containing exposed live parts must be marked with clearly visible warning signs forbidding unqualified persons to enter.

All electrical work will be done according to the latest adopted National Electrical Code as well as established local codes to ensure that all electrical conductors and equipment have the required approval.

Only qualified persons may work on electric circuit parts or equipment that has not been de-energized. These persons must be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

- **a. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and**
- **b. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and**
- **c. The clearance distances specified in 29 CFR 1926.960 and the corresponding voltages to which the qualified person will be exposed**

Note: The minimum approach distance may be the shortest distance between the energized part and the grounded surface.

TABLE V-5-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF 72.5 KV AND LESS [1]

Nominal voltage (kV) phase-to-phase	Distance			
	Phase-to-ground exposure		Phase-to-phase exposure	
	m	ft	m	ft
0.50 0.300 [2]	Avoid contact		Avoid contact	
0.301 to 0.750 [2]	0.33	1.09	0.33	1.09
0.751 to 5.0	0.63	2.07	0.63	2.07
5.1 to 15.0	0.65	2.14	0.68	2.24
15.1 to 36.0	0.77	2.53	0.89	2.92
36.1 to 46.0	0.84	2.76	0.98	3.22
46.1 to 72.5	1.00	3.29	1.20	3.94

Note 1 Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer will determine minimum approach distances by multiplying the distances in this table by the correction factor in Table V-4 (next page) corresponding to the altitude of the work.

Note 2 For single-phase systems, use voltage-to-ground.

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TABLE V-6-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF MORE THAN 72.5 KV [1, 2, 3]				
Voltage range phase to phase (kV)	Phase-to-ground exposure		Phase-to-ground exposure	
	m	ft	m	ft
72.6 to 121.0	1.13	3.71	1.42	4.66
121.1 to 145.0	1.30	4.27	1.64	5.38
145.1 to 169.0	1.46	4.79	1.94	6.36
169.1 to 242.0	2.01	6.59	3.08	10.10
242.1 to 362.0	3.41	11.19	5.52	18.11
362.1 to 420.0	4.25	13.94	6.81	22.34
420.1 to 550.0	5.07	16.63	8.24	27.03
550.1 to 800.0	6.88	22.57	11.38	37.34

Note 1 Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer will determine minimum approach distances by multiplying the distances in this table by the correction factor in Table V-4 (next page) corresponding to the altitude of the work.

Note 2 Employers may use the phase-to-phase minimum approach distances in this table provided that no insulated tool spans the gap and no large conductive object is in the gap.

Note 3 The clear live-line tool distance will equal or exceed the values for the indicated voltage ranges.

TABLE V-7-DC LIVE-LINE MINIMUM APPROACH DISTANCE (IN METERS) WITH OVERVOLTAGE FACTOR [1]					
Maximum anticipated per-unit transient overvoltage	distance (m) maximum line-to-ground voltage (kV)				
	250	400	500	600	750
1.5 or less	1.12	1.60	2.06	2.62	3.61
1.6	1.17	1.69	2.24	2.86	3.98
1.7	1.23	1.82	2.42	3.12	4.37
1.8	1.28	1.95	2.62	3.39	4.79

Note [1] The distances specified in this table are for air, bare-hand, and live-line tool conditions. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer will determine minimum approach distances by multiplying the distances in this table by the correction factor in Table V-4 (below) corresponding to the altitude of the work.

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TABLE V-4-ALTITUDE CORRECTION FACTOR	
Altitude above sea level (m)	*A*
0 to 900	1.00
901 to 1,200	1.02
1,201 to 1,500	1.05
1,501 to 1,800	1.08
1,801 to 2,100	1.11
2,101 to 2,400	1.14
2,401 to 2,700	1.17
2,701 to 3,000	1.20
3,001 to 3,600	1.25
3,601 to 4,200	1.30
4,201 to 4,800	1.35
4,801 to 5,400	1.39
5,401 to 6,000	1.44

Note: No later than April 1, 2015, for voltages over 72.5 kV, the employer will determine the maximum anticipated per-unit transient overvoltage, phase-to-ground, through an engineering analysis or assume a maximum anticipated per-unit transient overvoltage, phase-to-ground, in accordance with Table V-8. When the employer uses portable protective gaps to control the maximum transient overvoltage, the value of the maximum anticipated per-unit transient overvoltage, phase-to-ground, must provide for five standard deviations between the statistical sparkover voltage of the gap and the statistical withstand voltage corresponding to the electrical component of the minimum approach distance. The employer will make any engineering analysis conducted to determine maximum anticipated per unit transient overvoltage available upon request to employees and to the Assistant Secretary or designee for examination and copying.

TABLE V-8-ASSUMED MAXIMUM PER-UNIT TRANSIENT OVERVOLTAGE		
Voltage range (kV)	Type of current (ac or dc)	Assumed maximum per-unit transient overvoltage
72.6 to 420.0	ac	3.5
420.1 to 550.0	ac	3.0
550.1 to 800.0	ac	2.5
250 to 750	dc	1.8

Note: No later than April 1, 2015 all approach distances will be computed using information, tables, formulas, assumptions, notes found in Working on or near exposed energized parts. - 1926.960 and Appendix B to Subpart V of Part 1926-Working on Exposed Energized Parts. Click to access. Appendix B contains information on how to calculate the maximum anticipated per-unit transient overvoltage, phase-to-ground, when the employer uses portable protective gaps to reduce maximum transient overvoltage's.

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We will ensure that no employee approaches or takes any conductive object closer to exposed energized parts than our established minimum approach distance from 29 CFR 1910.333 Table S-5, below, unless:

a. The employee is insulated from the energized part (rubber insulating gloves or rubber insulating gloves and sleeves worn as described in Type of Insulation, below, constitutes insulation of the employee from the energized part upon which the employee is working provided that the employee has control of the part in a manner sufficient to prevent exposure to uninsulated portions of the employee's body), or
b. The energized part is insulated from the employee and from any other conductive object at a different potential, or
c. The employee is insulated from any other exposed conductive object in accordance with the requirements for live line barehand work.

Note: 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, LNE Electric will institute the necessary work practices, such as using insulation, guarding, and/or material handling techniques, which will minimize the hazard.

Table S-5 - 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.
Over 750V, not over 2kV	1 ft. 6 in.
Over 2kV, not over 15kV	2 ft. 0 in.
Over 15kV, not over 37kV	3 ft. 0 in.
Over 37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5kV, not over 121kV	4 ft. 0 in.
Over 121kV, not over 140kV	4 ft. 6 in.

Electrical Safety Measures

a. Daily, prior to use, all electrical equipment – including extension cords – will be inspected and defective items will be tagged out of service and not used.
b. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.
c. Tools will not be hoisted by their flexible electrical cords.
d. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.
e. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.
f. Temporary wiring and extension cords will be kept off of walking working surfaces and vehicle traffic areas or covered to prevent tripping and vehicle damage.
    1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.
    2. Worn or frayed electric cords or cables will not be used.

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g. Hands will be dry when working on electrical equipment including plugging in extension cords.
h. Areas in which electrical work is to be done must be adequately illuminated and temporary lighting must:
    1. Have guards in place.
    2. Not be suspended by its cords unless specifically designed for such installation.
i. A competent person, before work commences, will inform all employees in the work area of both exposed and concealed electrical hazards. If appropriate, warning tags will be used to prevent accidental contact with electrical energy.
j. When working around any electrical power circuit, employees will:
    1. Protect themselves by de-energizing the circuit and grounding it or by establishing insulation between themselves and the current.
    2. Ensure that any conductive materials and equipment that are in contact with any part of their body will be handled in a manner that will preclude contact with exposed energized conductors or circuit parts.
    3. Use portable ladders that have non-conductive siderails.
    4. Remove or insulate conductive articles of jewelry and clothing that might contact exposed energized parts.
k. All 15, 20, or 30-amp receptacle outlets that are not part of the permanent wiring of the building or structure and that are used by personnel will have ground-fault circuit interrupter protection for personnel. GFCI pigtails may be used to meet this requirement if properly sized. Remember, extension cords are considered temporary wiring.
    1. Ground fault circuit interrupters will be tested before use.
l. Only qualified persons may perform testing work on electric circuits or equipment.
m. Sufficient access and working space must be maintained about all electric equipment to permit ready and safe operation and maintenance. This space must be kept clear, i.e., it cannot be used for storage.
n. Live parts of electric equipment operating at 50 volts or more will be guarded against accidental contact by cabinets or other forms of enclosures.
o. If any work is to take place under overhead lines, the lines must be de-energized and grounded or other protective measures taken such as physically preventing approach such as using a barrier.
p. Portable ladders must have non-conductive side rails.
q. Conductive items of jewelry or clothing must not be worn around electricity unless rendered non-conductive by covering, wrapping, or other insulating means.

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r. The dimension of the working space in the direction of access to live parts likely to required examination, adjustment, service, or maintenance must not be less that noted below:

Working Clearances

Minimum clear distance for the below conditions [1]			
Nominal Voltage to Ground	Feet(a)	Feet(b)	Feet(c)
0-150	3	3	3
151-600	3	3 1/2	4

Footnote[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 workplace [not guarded as provided in Condition (a) with the operator between.

Minimum Depth of Clear Working Space in Front of Electric Equipment			
Nominal Voltage to Ground	Feet(a)	Feet(b)	Feet(c)
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

Footnote[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 workplace [not guarded as provided in Condition (a) with the operator between.

The importance of working clearances cannot be overstated. At any time, when working with live electrical systems, there is the possibility of an arcing fault causing an arc flash where the current explosively flows through ionized air at 35,000°F causing incurable burns, hearing loss, collapsed lungs, or even death from the electricity of flying metal shrapnel.

As an electrical contractor working in a facility where the possibility of arc flash exists, check to see if an arc flash assessment has been performed on electrical equipment on which you will be working. If it has, follow that specific guidance. If it has not, perform (or have a qualified vendor perform) the arc flash assessment. Refer to NFPA 70E for specific guidance appropriate to the facility's specific electrical equipment.

Note: NFPA 70E is a National Consensus Standard which is incorporated by reference within the OSHA standards; specifically, Appendix A to Subpart S, 29 CFR 1910. Failure to comply with NFPA 70E is citable under the general duty clause.

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Electrical Shock/Electrocution

When working near or on de-energized parts, they will be considered energized **unless** they are locked out or tagged out in accordance with 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*.

Electrical equipment and lines must be assumed to be energized until proven to be de-energized. Operating voltages of equipment and lines must be determined before working on or near energized parts. One can avoid the hazards of electricity by determining, prior to starting work, the voltages one will be working with, the condition of equipment, de-energizing the line or equipment, wearing the appropriate PPE, maintaining the prescribed distance, and using the appropriate tools.

When an unqualified person is working in an elevated position near overhead lines, they cannot come closer to any unguarded, energized overhead line than the following distances:

a. For voltages to ground 50kV or below - 10 feet
b. For voltages to ground over 50kV - 10 feet plus 4 inches for every 10kV over 50kV.

Note: This distance is measured form the longest conductive object they may come into contact with.

No employee is permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown below unless:

a. The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved will be considered insulation of the employee from the energized part), or
b. The energized part is insulated or guarded from the employee and any other conductive object at a different potential, or
c. The employee is isolated, insulated, or guarded from any other conductive object(s), as during live-line bare-hand work.

When de-energizing lines & equipment operated in excess of 600 volts, & the means of disconnecting from electric energy is not visibly open or visibly locked out, a control of hazardous energy program will be implemented which, at the minimum, includes:

a. Clearly identifying and isolating all sources of voltage (hazardous energy).
b. Notification and assurance from the designated employee will be obtained assuring that:
    1. All switches and disconnectors through which electric energy may be supplied to the particular section of line or equipment to be worked have been de-energized.
    2. All switches and disconnectors are plainly tagged indicating that men are at work and, if design allows, they are rendered inoperable.
    3. After all designated switches and disconnectors have been opened, rendered inoperable, and tagged, visual inspection or tests will be conducted to insure that equipment or lines have been de-energized.
    4. Protective grounds will be applied on the disconnected lines or equipment to be worked on.

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5. Guards or barriers will be erected as necessary to adjacent energized lines.
6. When more than one independent crew requires the same line or equipment to be de-energized, a prominent tag for each such independent crew will be placed on the line or equipment by the designated employee in charge.
7. Upon completion of work on de-energized lines or equipment, each designated employee in charge will determine that all employees in his crew are clear, that protective grounds installed by his crew have been removed, and he will report to the designated authority that all tags protecting his crew may be removed.

When a crew working on a line or equipment can clearly see that the means of disconnecting from electric energy are visibly open or visibly locked-out, then:

a. Guards or barriers will be erected as necessary to adjacent energized lines.
b. Upon completion of work on de-energized lines or equipment, each designated employee in charge of a crew will determine that all employees in the crew are clear, the protective grounds installed by the crew have been removed, and he/she will report to the designated authority that all tags protecting his crew may be removed.

All live-line tools will be visually inspected before use each day. Prior to use, tools must be wiped clean. Tools with apparent hazardous defects must be tagged and removed from service until tested with portable or laboratory testing equipment.

All rubber insulating equipment will be visually inspected prior to use and an “air test” will be performed on rubber gloves prior to use.

Hard hats for those who have possible exposure to electrical shock or burns must be manufactured in accordance with the provisions of ANSI Z89.2-1971, Industrial Protective Helmets for Electrical Workers, Class B.

Tools, tape, straps, life lines, belts, hoses, and ladders must be non-conductive.

Only live-line tool poles having a manufacturer's certification to withstand the following minimum tests will be used:

a. 100,000 volts per foot of length for 5 minutes when the tool is made of fiberglass
b. 75,000 volts per foot of length for 3 minutes when the tool is made of wood

When working on energized lines with live-line tools, insulating high voltage gloves must be worn (and other insulating protective equipment, as required) during the operation of switching, fusing, or disconnecting devices and energizing or de-energizing oil filled electrical equipment that is being worked on. Proper cross-arm extensions or ropes will be used to hold an energized conductor clear.

When ropes or blocks and ropes are used under strain, they must be securely tied off. When tied off to a vehicle, the vehicle must be chocked with the brakes set.

Portable electric hand tools will be:

a. Equipped with a three-wire cord having the ground wire permanently connected to the tool frame and means for grounding the other end, **or**
b. Of the double insulated type and permanently labeled as "Double Insulated", **or**
c. Connected to the power supply by means of an isolating transformer, or other isolated power supply

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Pneumatic tools which are used on or around energized lines or equipment will have an accumulator on the compressor to collect moisture.

Provided the “on-off” switch may be activated by a single motion of the finger that turned it on, as hydraulic tools may, as drills and similar equipment, have a switch that has a lock-on control.

Chain saws, circular saws, and similar equipment will have switches that turn off when released.

Aerial lift trucks, when working near energized lines or equipment, must be grounded or barricaded and be considered as energized equipment, or the aerial lift truck must be insulated for the work being performed

Equipment or material will not be passed between a pole or structure and an aerial lift while an employee working from the basket is within reaching distance of energized conductors or equipment that are not covered with insulating protective equipment.

In all cases, conductors and equipment will be treated as energized until tested, or otherwise determined to be de-energized, or until grounded. Ensure there is no possibility of inducing voltages or contact with energized lines.

When attaching grounds, the ground end will be attached first, and the other end will be attached and removed by means of insulated tools or other suitable devices. When removing grounds, the grounding device will first be removed from the line or equipment using insulating tools or other suitable devices. Grounds will be placed between the work location and all sources of energy and as close as practicable to the work location. Grounds may be temporarily removed only when necessary for test purposes and extreme caution will be exercised during the test procedures.

When grounding electrodes are utilized, such electrodes will have a resistance to ground low enough to remove the danger of harm to personnel or permit prompt operation of protective devices.

Grounding to tower will be made with a tower clamp capable of conducting the anticipated fault current.

A ground lead, to be attached to either a tower ground or driven ground, will be capable of conducting the anticipated fault current and will have a minimum conductance of No. 2 AWG copper.

Heavy Equipment and Electrical Power Lines

Except where electrical distribution and transmissions lines have been de-energized and visibly grounded at the point of work or where insulating barriers (not attached to the vehicle) have been erected to prevent physical contact with the lines, the following clearance – between any part of the equipment, load line, or load **and** the power line – will be observed:

a. For lines rated 50 kV or below the minimum clearance between the lines & any part of the equipment or load will be at least 10 feet;
b. For lines rated over 50 kV the minimum clearance between the lines & any part of the equipment or load will be at least 10 feet plus 0.4 inch for each 1 kV over 50 kV (or twice the length of the line insulator, but never less than 10 feet).
c. When in transit without a load & equipment lowered, the equipment clearance will be a minimum of 4 feet for voltages less than 50 kV, 10 feet for voltages 50 kV up to & including 345 kV, & 16 feet for voltages up to & including 750 kV.

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Confined and Enclosed Spaces

When working in confined and/or enclosed spaces containing exposed energized parts, adequate illumination will be provided to ensure that work may be performed safely.

When working in confined and/or enclosed spaces containing exposed energized parts, employees will be protected from inadvertent contact with these parts with company provided protective shields, barriers, or other insulating materials.

Training:

All employees who face electrical hazards that are not reduced to a safe level by the applicable electrical installation requirements will be trained in **safety-related work practices** and procedural requirements as necessary to provide protection from the electrical hazards associated with **their respective job assignments**. Employees will be trained to identify and understand the relationship between electrical hazards and possible injury.

Training will be in a classroom and/or on-the-job and the degree of training will be determined by the risk to the employee. Training will include applicable requirements of **1910.331 through 1910.335 that pertain to their respective job assignments**.

Employees will receive training in emergency procedures including methods of release from contact with exposed energized electrical conductors or circuit parts; methods of first aid; and CPR if the duties warrant such training. Matt Landers will certify that employees have been trained in approved methods of resuscitation annually.

Training for Qualified Persons:

See **NFPA 70E**

Note: A qualified person has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Qualified persons must be trained and knowledgeable of the construction and operation of equipment or a specific work method and to recognize and avoid the electrical hazards with respect to the equipment or work methods.

Qualified persons will be familiar with the proper use of special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

Note: A person can be qualified with respect to certain equipment and methods but still be unqualified for others.

Qualified persons will be permitted to work within the Limited Approach Boundary of exposed energized electrical conductors and circuit parts operating at 50 volts or more and will be trained in the following:

a. The skills and techniques necessary to distinguish exposed energized electrical conductors and circuits parts from other parts of electrical equipment
b. The skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
c. The approach distances specified in Table 130.2(c) and the corresponding voltages to which the qualified person will be exposed.
d. The decision-making process necessary to determine the degree and extent of the hazard and the PPE and job planning necessary to perform the task safely.

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If undergoing OJT and, in the course of the OJT has demonstrated an ability to perform duties safely under the direct supervision of a qualified person, this person will be considered qualified for the performance of these duties.

Tasks performed less often that once per year will require retraining before performance of the work practices involved.

Qualified persons will be trained to select an appropriate voltage detector and demonstrate how to use a device to verify the absence of voltage, including interpreting indications provided by the device. Will be trained to understand all limitations of each specific voltage detector that may be used.

Training for Unqualified Persons:

Unqualified persons will be trained in and be familiar with any of the electrical safety related practices that are necessary for their safety.

Note: Unqualified persons will not be permitted to enter spaces that are required to be accessible to qualified employees only unless the electric conductors and equipment involved are in an electrically safe work condition.

Retraining:

Retraining will be given when:

a. Supervisors or annual inspections indicate that the employee is not complying with the safety-related work practices.
b. New technology, new types of equipment, of changes in procedures necessitate the use of safety-related work practices that are different than those the employee would normally use.
c. If the employee must employ safety-related work practices that are not normally used during regular job duties.

Training Documentation:

The company will document that each employee has received the training above **after** the employee demonstrates proficiency in the work practices involved and will be maintained for the duration of the employee's employment. Training documentation will contain the employee's name and dates of training.

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Electrical Work - Arc Flash Safety

In our field of work, arc flash is probably the most serious of the safety concerns that we have. Arc Flash is a constant risk and you will have to take precautions at all times to prevent it from happening. Unfortunately, it happens often and it is very costly. Most importantly, it can be deadly.

Recently a field engineer at a different contractor experienced an arc flash when opening the panel door of a 1200-amp GE Spectra Series switchboard. The spring clip of the interlock had broken loose, falling into the energized A-phase line side fuse cap and shorting to ground. This event took less than a second to occur and was caused by a “hidden” hazard – it could’ve happened to anyone. Because the field engineer was well-trained, used safe work practices, and wore the appropriate PPE, he sustained no injuries. The attached pictures show the effects of the arc blast (note the scorched glove).

An arc flash, essentially an electrical short circuit through air from phase to ground or phase to phase, occurs in an instant. In a worst-case scenario, an arc flash can vaporize equipment causing an arc-plasma fire ball. Solid copper conductors can expand to 67,000 times their original volume and temperatures may exceed 35,000ºF.

Per NFPA 70E, a Flash Hazard Analysis will be done before a person approaches any exposed electrical conductor or circuit part that has not been placed in an electrical safe work condition. This Arc Flash Hazard Analysis will be used to determine the level of Personal Protection Equipment PPE required and the Arc Flash Boundary in inches along with the incident energy found at each location.

Each piece of equipment operating at 50 volts or more **and not put into a de-energized state** must be evaluated for arc flash and shock protection. This evaluation will determine the actual boundaries (i.e. prohibited, limited, restricted, etc.) and will inform the employee of what PPE must be worn.

Once the evaluation is complete an Arc Flash Hazard warning label must be affixed to the equipment and readily accessible to employees who may work on the energized equipment.

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Specific OSHA Requirements:

Note: Employers that operate or maintain electric power generation, transmission, or distribution lines or equipment must follow §1910.269. Employers with employees who perform construction work on electric power transmission or distribution lines, or equipment must follow Subpart V. For clarification, "construction work" includes the erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of existing transmission and distribution lines and equipment.

Information Transfer Between Host and Contractor

Note: Host Employer is an employer that operates, or that controls the operating procedures for, an electric power generation, transmission, or distribution installation on which a contract employer is performing work covered by the standards above. For clarification, the host employer need not be the entity that hired the contract employer.

Note: Contract employer is an employer, other than a host employer, that performs work covered by the standard under contract.

Before work begins, the **host employer** must inform the contract employer of:

a. The following characteristics of the host employer's installation when they are related to the safety of the work to be performed – nominal voltages of lines and equipment, the maximum switching-transient voltages, the presence of hazardous induced voltages, the presence of protective grounds and equipment grounding conductors, and the locations of circuits and equipment, including electric supply and communication lines and fire-protective signaling circuits;
b. The following conditions when they are related to the safety of the work to be performed and known to the host employer – the condition of protective grounds and equipment grounding conductors, the condition of poles, and environmental conditions relating to safety;
c. Information about the design and operation of the host employer's installation that the contract employer needs to make the assessments required by the standard; and
d. Other information about the design or operation of the host employer's installation that is (1) known by the host employer, (2) requested by the contract employer, and (3) related to the protection of the contract employer's employees.

Before work begins, the **contract employer** must advise the host employer of any unique hazardous conditions posed by the contract employer's work. Also, the **contract employer** must advise the host employer of any unanticipated hazardous conditions found, while the contractor's employees are working, that the host employer did not mention; the contract employer must provide this information to the host employer **within 2 working** days after discovering the hazardous condition.

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Arc-Flash Protection Requirements:

We will:

a. Treat and consider all electric lines and equipment as energized unless we ensure they are deenergized.
b. Ensure that only qualified employees work on and in areas containing unguarded, exposed energized lines of parts of equipment.
c. Assess the workplace to identify employees exposed to hazards from flames or from electric arcs, and while working on a host employer's property, we will follow their established minimum approach distances.
d. Ensure that each employee, to the extent that other safety-related conditions at the worksite permit, works in a position from which a slip or shock will not bring the employee's body into contact with exposed, uninsulated parts energized at a potential different from the employee's.
e. Ensure that the outer layer of clothing worn by an employee is flame resistant under certain conditions.
f. Ensure that employees exposed to hazards from flames or electric arcs do not wear clothing that could melt onto their skin or that could ignite and continue to burn when exposed to flames or the estimated heat energy.
g. Ensure that, when an employee performs work within reaching distance of exposed energized parts of equipment, the employees removes or renders nonconductive all exposed conductive articles, such as keychains or watch chains, rings, or wrist watches or bands, unless such articles do not increase the hazards associated with contact with the energized parts.
h. Obtain from the host employer or make reasonable estimates of the incident heat energy of any electric-arc hazard to which an employee would be exposed.
i. With certain exceptions, ensure that employees exposed to hazards from electric arcs wear protective clothing and other protective equipment with an arc rating greater than or equal to the estimated heat energy.
j. Ensure that devices used by employees to close circuits under load conditions are designed to safely carry the current involved.

We must assess the workplace for arc-flash hazards by the effective date of the final rule. In addition, we must ensure that employees do not wear clothing that could melt onto their skin or that could ignite and continue to burn by the effective date of the final rule. By **January 1, 2015**, we must make reasonable estimates of incident energy. Finally, we must provide protective clothing and other protective equipment meeting the arc-flash protection requirements of the final rule by **April 1, 2015**.

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As an employer, we must, and of course will, pay for the flame-resistant and arc-rated clothing and other arc-flash protective equipment required by the standard.

Appendix E to Subpart V of Part 1926 - Protection From Flames and Electric Arcs provides assessment guidelines for assessing the workplace for flame and electric-arc hazards.

The following tables will assist in performing the required assessments:

Table 1 - Example Assessments for Various Tasks

Table 2 - Methods of Calculating Incident Heat Energy from an Electric Arc

Table 3 - Selecting a Reasonable Incident-Energy Calculation Method

Table 4 - Selecting a Reasonable Distance from the Employee to the Electric Arc

Table 5 - Selecting a Reasonable Arc Gap

Table 6 - Incident Heat Energy for Various Fault Currents, Clearing Times, and Voltages of 4.0 kv to 46.0 kv: Rubber Insulating Glove Exposure Involving Phase-to-Ground Arcs in Open Air Only

Table 7- Incident Heat Energy for Various Fault Currents, Clearing Times, and Voltages: Live-Line Tool Exposures Involving Phase-to- Ground Arcs in Open Air Only

Insulating PPE Maintenance and Use:

Electrical protective equipment will be maintained in a safe, reliable condition. Insulating equipment will be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given for an air test along with the inspection.

Maximum test intervals for rubber insulating equipment will be in accordance with NFPA 70E Table 130(c)(6)(c). Time frames for testing would include: 1) Blankets-before first issue/every 12 months, thereafter, 2) Gloves-before first issue and every 6 months, and, 3) Sleeves-before first issue and every 12 months. Covers and line hose will be tested if insulating value is suspect.

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Excavating, Trenching, & Shoring

29 CFR 1926.650 - Scope, application, and definitions applicable to this subpart
29 CFR 1926.651 - Specific Excavation Requirements
29 CFR 1926.652 - Requirements for protective systems
29 CFR 1926 - Subpart P App A Soil Classification
29 CFR 1926 - Subpart P App B Sloping and Benching
29 CFR 1926 - Subpart P App C Timber Shoring for Trenches
29 CFR 1926 - Subpart P App D Aluminum Hydraulic Shoring for Trenches
29 CFR 1926 - Subpart P App E Alternatives to Timber Shoring
29 CFR 1926 - Subpart P App F Selection of Protective Systems

Overview

Excavating involves any earth removal which creates a cut, cavity, trench, or depression in the earth's surface. A trench is 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 (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Prior to excavating, obstructions that may create a hazard to employees will be removed or supported and utility companies will be contacted, advised of the proposed work, and asked to establish the location of underground installations.

If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

a. Extreme caution is observed.
b. Detection equipment or other acceptable means are used to locate the approximate location of the utility installation.
c. As the approximate location is approached, the exact location will be determined by safe and acceptable means before proceeding.

In open excavations, underground installations will be protected, supported or removed as necessary to protect employees.

To ensure employee safety, the competent person will ensure that during excavating work in trenches there is:

a. Appropriate access and egress for personnel and/or equipment; such as stairs, ramps and ladders, so as to require no more than 25 feet of lateral travel for employees in trenches four (4) feet or more deep.
b. Employee protection for head injury. All employees must wear hard hats.
c. No spoil pile or equipment within two (2) feet of the edge of the excavation.
d. Employee protection from vehicular traffic such as barricades, ground guides for operators of equipment with a limited view, away sloping grades, etc.
e. No exposure to falling loads.
f. No danger to employees from water accumulation.

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g. No danger from cave-in. Shoring, a structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation, will prevent cave-ins.
    1. Shoring is not required for trenches less than five (5) feet deep if an examination by a competent person determines the soil has no potential for a cave-in. In this situation, vertical sides are allowed.
    2. Once a trench is over 20 feet deep, protective systems, which may include shoring, must be designed by a registered professional engineer.
    3. There are other methods of protection from cave-ins such as sloping or benching the adjacent ground according to specific criteria dependent on the soil conditions, weather, and adjacent structures.
    4. The total number of cave-in accidents is relatively small, however, the accidents which do occur are generally very serious and are much more likely to be fatal than other types of accidents in the construction industry.
h. A method to prevent mobile equipment from falling into the excavation such as barricades. Ground guides will be used if the equipment operator does not have a clear view of the edge. If possible, the grade should slope away from the excavation.

If the atmosphere is dangerous or likely to be dangerous, testing will be done as often as needed and emergency rescue equipment – such as breathing apparatus, safety harness and line, or a basket stretcher – must be available.

When a hazardous atmosphere does exist, appropriate respiratory protection will be used and a rescue plan developed which includes having an attendant outside the hazardous area with appropriate equipment and training.

Training

Training will be provided to all employees and to those contractors not initiating trenching but are in close proximity. All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept at the work area. LNE Electric will provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee's knowledge, there is an indication that retraining is necessary.

Protective Systems

Except when an excavation is made entirely in stable rock, or it is less than 5 feet in depth and a competent person finds no indication of potential cave-in, employees in an excavation will be protected from cave-in by protective systems designed in accordance with paragraphs (b) or (c) of *Requirements for Protective Systems*, found here 29 CFR 1926.652.

All employees involved with excavating are to review these standards and understand, in general terms:

a. The extensive degree of basic data, design, and knowledge that goes into employee protection during excavating projects.
b. The types of soils and how to identify them on the job site.
c. The soil condition – specifically moisture content – and how that impacts on stability during excavations.
d. The absolute need for a competent person to be on site at all times during excavating work to, visually and manually, test soil conditions as work progresses and to maintain a safe site.

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Daily Inspections

Prior to work and as needed throughout the shift, a competent person will conduct daily inspections of excavations, adjacent areas and protective systems to find evidence of a developing cave-in situation, failure of protective systems, hazardous atmosphere, or other hazardous conditions.

After every rainstorm or event which would affect the safety of employees within an excavation, an inspection will be made by a competent person.

Fall Protection

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. If these walkways are 6 feet or more above a lower level, guardrails must be used. Specific criteria for guardrails is found in *Fall Protection Systems Criteria and Practices*, located at 29 CFR 1926.502(b).

Definitions

Accepted Engineering Practices means those requirements which are compatible with standards of practice required by a registered professional engineer.

Aluminum Hydraulic Shoring means a pre-engineered shoring system comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Bell-bottom Pier Hole means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Benching (Benching System) 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 which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Cross Braces mean the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Faces or **Sides** means the vertical or inclined earth surfaces formed as a result of excavation work.

Failure means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

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Hazardous Atmosphere means an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Kickout means the accidental release or failure of a cross brace.

Protective System means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp means an inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.

Registered Professional Engineer means a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

Sheeting means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield (Shield System) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in accordance with 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

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.

Sides see "Faces."

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 required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Stable Rock means natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

Structural Ramp means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Support System means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

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Tabulated Data means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

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 (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Trench Box see "Shield.

Trench Shield see "Shield."

Uprights means the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

Wales means horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

Specific Excavation Requirements

Surface Encumbrances

All surface encumbrances that create a hazard to employees must be removed or supported, as necessary, to safeguard employees

Underground Installations

The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, must be determined prior to opening an excavation.

Utility companies or owners will be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.

If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

a. Extreme caution is observed.
b. Detection equipment or other acceptable means are used to locate the approximate location of the utility installation.
c. As the approximate location is approached, the exact location will be determined by safe and acceptable means before proceeding.

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In addition to calling the specific utility company, the competent person will call: **"811"** which is a One Call before you dig information service.

The below universal color indicates what utility is buried below ground:

Red – Electric

Orange – Communications, Telephone/CATV

Blue – Potable Water

Green – Sewer/Drainage

Yellow – Gas/Petroleum Pipe Line

Purple – Reclaimed Water

White – Premark site of intended excavation

Caution must be exercised because:

a. Many underground utilities are not recorded.
b. Many that are recorded are not accurate.
c. Many are at different depths below ground than indicated.

Utilities must be physically identified to ensure they are not hit.

Once utilities are found, use signage incorporating the universal color codes, above.

Note: After we put in an underground item, we must report it, so the next contractor does not hit it.

Additionally, while the excavation is open, we must protect, support, or remove if necessary, any underground installations that will present a hazard to our employees.

Access and Egress

Structural Ramps

Structural ramps that are used solely by employees as a means of access or egress from excavations must be designed by a competent person. If structural ramps are used for access or egress of equipment, they must be designed by a competent person who is qualified in structural design, and they must be constructed in accordance with their design.

The follow are design and construction requirements:

a. All the structural members of ramps and runways must be fastened together to prevent displacement.
b. Structural members used for ramps and runways must be uniform in thickness to prevent a tripping hazard.
c. Cleats or other means used to connect runway structural members must be attached to the bottom of the runway or in a manner that prevents tripping.
d. Structural ramps used in place of steps must be provided with cleats or other surface treatments on the top surface to prevent slipping.

Means of Egress from Trench Excavations

A stairway, ladder, ramp or other safe means of egress must be in trench excavations that are 4 feet or more in depth. The means of egress must be place at least every 25 feet of lateral travel for employees.

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Exposure to Vehicular Traffic

Employees exposed to public vehicular traffic will be provided with, and must wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

Exposure to Falling Loads

Employees are not permitted underneath loads handled by lifting or digging equipment and they are required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 29 CFR 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

While in an excavation, employees must wear hard hats to them protection from head injuries.

Warning Systems for Mobile Equipment

A warning system must be used when mobile equipment is operated adjacent to an excavation, or when equipment is required to approach the edge of an excavation and the operator does not have a clear or direct view of the edge of the excavation. Warning systems may include barricades, hand or mechanical signals, or stop logs.

If possible, the surrounding area of the excavation should be graded with the slope going away from the edge of the excavation.

Hazardous Atmospheres

Testing and Controls

In addition to the requirements of 29 CFR 1926 Subparts D & E used to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements also apply:

a. Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.
b. Adequate precautions must be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with 29 CFR 1926 Subparts D & E.
c. Adequate precautions must be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas more than 20 percent of the lower flammable limit of the gas.
d. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing must be conducted as often as necessary to ensure that the atmosphere remains safe.

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Emergency Rescue Equipment

Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, must be readily available when hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment must be attended when in use.

Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, must wear a harness with a life-line securely attached to it. The lifeline must be separate from any line used to handle materials, and be individually attended all times the employee wearing the lifeline is in the excavation.

Protection from Water Accumulation

Employees will not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

If water is controlled or prevented from accumulating using water removal equipment, the water removal equipment and operations must be monitored by a competent person to ensure proper operation.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Additionally, excavations subject to runoff from heavy rains require an inspection by a competent person before being entered.

Stability of Adjacent Structures

When the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning will be provided to ensure the stability of those structures.

Excavating below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees is not permitted except under the following conditions:

a. A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
b. The excavation is in stable rock; or
c. A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation that there is no risk; or
d. A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

Additionally, any sidewalks, pavements, and appurtenant structure must not be undermined unless a support system or another method of protection is provided.

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Protection from Loose Rock or Soil

Adequate protection will be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection will consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

Employees will be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations by placing and keeping such materials or equipment at least 2 feet from the edge of excavations or using retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both when necessary.

Inspections

Daily inspections of excavations, the adjacent areas, and protective systems will be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection will be conducted by the competent person prior to the start of work and as needed throughout the shift.

Inspections must also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees must be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Walkways

Walkways will be provided if employees or equipment are required or permitted to cross over an excavation. Guardrails that comply with 29 CFR 1926.502(b) will be provided if the walkways are 6 feet or more above the excavation.

Requirements for Protective Systems

Protection of Employees in Excavations

Each employee in an excavation will be protected from cave-ins by an adequate protective system designed as described on the following pages covering sloping & benching systems and support & shielding systems, except when:

a. Excavations are made entirely in stable rock; or
b. Excavations are less than 5 feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

Protective systems must have the capacity to resist, without failure, all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

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Design of Sloping and Benching Systems

If LNE Electric uses sloping and benching systems, the design and configuration will be selected and constructed in accordance with 1 of the following 4 options:

Option 1 - Allowable Configurations & Slopes

Using option 1, excavations must be sloped at 34 degrees or less, which is equal to 1 ½ horizontal to 1 vertical, unless the employer uses one of the other options listed below. Slopes must be excavated to form configurations that are in accordance with the slopes for Type C soil in 29 CFR 1926 Subpart P Appendix B.

Option 2 - Allowable Slopes & Configurations from Appendices A & B.

With option 2, the maximum allowable slopes, and allowable configurations for sloping and benching systems, must be determined in accordance with the conditions and requirements set forth in 29 CFR 1926 Subpart P Appendices A and B.

Option 3 - Designs using Tabulated Data.

For option 3, the designs of sloping or benching systems must be selected from and be in accordance with tables and charts approved by a registered professional engineer. This tabulated data must be in written form and include all the following:

a. Identification of the parameters that affect the selection of a sloping or benching system drawn from such data;
b. Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe;
c. Explanatory information as may be necessary to aid in making a correct selection of a protective system from the data.

We will maintain at least one copy of the tabulated data that identifies the registered professional engineer who approved the data at the jobsite during construction of the protective system. After that time, the data can be stored off the jobsite, but a copy must be made available upon request.

Option 4 - Design by a Registered Professional Engineer

Sloping and benching systems not utilizing Option 1, Option 2, or Option 3 must be approved by a registered professional engineer and designs must be in written form and include at least the following:

a. The magnitude of the slopes that were determined to be safe for the project;
b. The configurations that were determined to be safe for the project; and
c. The identity of the registered professional engineer approving the design.

We will maintain at least one copy of the design at the jobsite while the sloping and/or benching system is being constructed. After that time, the design does not need to be kept at the jobsite, but a copy must be made available upon request.

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Design of Support, Shield, & Other Protective Systems

If LNE Electric uses support, shield, and other protective systems, they will be selected and constructed in accordance with the following requirements:

Option 1 - Designs using Appendices A, C & D

With option 1, designs for timber shoring in trenches must be determined in accordance with the conditions and requirements of 29 CFR 1926 Subpart P Appendices A & C. Option 1 designs for aluminum hydraulic shoring will be in accordance with option 2 below and use manufacture's tabulated data. If manufacturer's tabulated data cannot be utilized, designs must be made in accordance with 29 CFR 1926 Subpart P Appendix D.

Option 2 - Designs using Manufacturer's Tabulated Data.

For option 2, design of support, shield, or other protective systems that are drawn from manufacturer's tabulated data must be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

Deviation from the specifications, recommendations, & limitations issued or made by the manufacturer will only be allowed if the manufacturer issues specific written approval.

Manufacturer's specifications, recommendations, and limitations, & manufacturer's approval to deviate from the specifications, recommendations, & limitations must be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy will be made available upon request.

Option 3 - Designs using Other Tabulated Data

Using option 3, designs of support, shield, or other protective systems will be selected from and be in accordance with tables and charts approved by a registered professional engineer. This tabulated data must be in written form and include all the following:

a. Identification of the parameters that affect the selection of a protective system drawn from such data;
b. Identification of the limits of use of the data;

Explanatory information as may be necessary to aid in making a correct selection of a protective system from the data.

We will maintain at least one copy of the tabulated data that identifies the registered professional engineer who approved the data at the jobsite during construction of the protective system. After that time, the data can be stored off the jobsite, but a copy must be made available upon request.

Option 4 - Design by a Registered Professional Engineer

Support, shield, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, must be approved by a registered professional engineer and the designs must be in written form and include the following:

a. A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and
b. The identity of the registered professional engineer approving the design.

We will maintain at least one copy of the design at the jobsite while the protective system is being constructed. After that time, the design does not need to be kept at the jobsite, but a copy must be made available upon request.

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Materials and Equipment

Materials and equipment used for protective systems must be free from damage or defects that might impair their proper function.

Manufactured materials and equipment used for protective systems will be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a way that will prevent employee exposure to hazards.

When material or equipment that is used for protective systems is damaged, a competent person must examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then it will be removed from service. It must be evaluated and approved by a registered professional engineer before being returned to service.

Installation and Removal of Support Systems

Members of support systems must be securely fastened together to prevent sliding, falling, kick-outs, or other predictable failures.

Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system. Additionally, installation of a support system must be closely coordinated with the excavation of trenches.

Individual members of support systems cannot be subjected to loads exceeding those which they were designed to withstand.

Before temporary removal of individual members begins, additional precautions must be taken to ensure the safety of employees. This might include installing other structural members to carry the loads imposed on the support system.

Removal must begin at the bottom of the excavation and progress toward the top. Members must be released slowly to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation. We will be sure to backfill the excavation as supports are removed.

The excavation below the bottom of the members of a support system is permitted to a depth of 2 feet or less and only if the system is designed to resist the forces calculated for the full depth of the trench. There must be no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

Sloping and Benching Systems

Employees are not permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

Shield Systems

The following are requirements of shield systems.

a. They will not be subjected to loads exceeding those which the system was designed to withstand.
b. They must be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

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c. Employees must be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.
d. Employees are not allowed in shields when shields are being installed, removed, or moved vertically.

Additionally, when shield systems are used in trench excavations, excavating is permitted to a depth of 2 feet or less below the bottom of a shield and only if the shield is designed to resist the forces calculated for the full depth of the trench. There can be no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

Soil Classification

General

The following information describes methods for classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. It contains definitions, requirements, and acceptable visual & manual tests for classifying soils.

Definitions

The definitions and examples given below are based on, in whole or in part, the following:

a. American Society for Testing Materials (ASTM) Standards D653-85 and D2488;
b. The Unified Soils Classification System;
c. The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and
d. The National Bureau of Standards Report BSS-121.

Cemented soil means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive soil means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist. Cohesive soil is hard to break up when dry and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil means soil that does not exhibit visible signs of moisture content.

Fissured means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist soil means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

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Plastic means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

Soil classification system means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.

Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil means soil which is underwater or is free seeping.

Type A means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

a. The soil is fissured; or
b. The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
c. The soil has been previously disturbed; or
d. The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
e. The material is subject to other factors that would require it to be classified as a less stable material.

Type B means:

a. Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
b. Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
c. Previously disturbed soils except those which would otherwise be classed as Type C soil.
d. Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
e. Dry rock that is not stable; or
f. Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

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Type C means:

a. Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
b. Granular soils including gravel, sand, and loamy sand; or
c. Submerged soil or soil from which water is freely seeping; or
d. Submerged rock that is not stable, or
e. Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined compressive strength means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

Requirements

Classification of Soil & Rock Deposits

Any time there is an excavation that employees must enter, each soil and rock deposit must be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the preceding definitions.

The classification of the deposits must be made based on the results of at least one visual and at least one manual analysis. A competent person will conduct this analysis by using tests described below, or another recognized method of soil classification and testing such as those adopted by the American Society for Testing Materials or the U.S. Department of Agriculture textural classification system.

Acceptable visual and manual analyses must be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to properly identify the properties, factors, and conditions affecting the classification of the soil and rock deposits.

Layered Soil Systems

With layered soils and rock deposits, the classification must be based on the weakest layer. However, each layer may be classified individually when a more stable layer is under a less stable layer.

Reclassification

If, after classifying soil, the properties, factors, or conditions affecting its classification change in any way, the changes will be evaluated by a competent person. The soil must be reclassified as necessary to reflect the changed circumstances.

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Acceptable Visual Tests

Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material. The following observations must be made:

a. Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.
b. Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.
c. Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.
d. Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.
e. Observed the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.
f. Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.
g. Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

Acceptable Manual Tests

Manual analysis of soil samples must be conducted to determine quantitative as well as qualitative properties of soil and to provide more information to properly classify soil.

Plasticity Test

Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two-inch length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

Dry Strength Test

If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt).

If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt.

If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered un-fissured.

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Thumb Penetration Test

The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. This test is based on the thumb penetration test described in ASTM Standard D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).

For example, Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort.

Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb and can be molded by light finger pressure.

This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

Other Strength Tests

Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

Drying Test

The basic purpose of the drying test is to differentiate between cohesive material with fissures, un-fissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick and six inches in diameter until it is thoroughly dry. The following explains how to interrupt the results:

a. If the sample develops cracks as it dries, significant fissures are indicated.
b. Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an un-fissured cohesive material and the unconfined compressive strength should be determined.
c. If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Sloping and Benching

General

The following contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. These requirements apply when the design of sloping and benching protective systems is to be performed using Option 2 described in 29 CFR 1926.652(b)(2).

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Definitions

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation. Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

Requirements

Soil Classification Soil and rock deposits must be classified in accordance with the preceding information from Appendix A of 29 CFR 1926 Subpart P as stable rock.

Maximum Allowable Slope

The maximum allowable slope for a soil or rock deposit are determined using Table B-1 - Maximum Allowable Slopes from Appendix B from 29 CFR 1926 Subpart P:

Table B-1 - Maximum Allowable Slopes	
Soil or Rock Type	Maximum Allowable Slope (H:V)(1) for Excavations Less than 20 feet deep (3)
Stable Rock	Vertical (90º)
Type A (2)	3/4:1 (53º)
Type B	1:1 (45º)
Type C	1 ½:1 (34º)
Footnote 1: Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.	
Footnote 2: A short-term maximum allowable slope of 1/2H:1V (63º) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53º).	
Footnote 3: Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.	

Actual Slope

The actual slope must not be steeper than the maximum allowable slope, except when there are signs of distress. Then actual slope must be less steep than the maximum allowable slope. If that situation occurs, the slope will be cut back to an actual slope that is at least ½ horizontal to 1 vertical (½H:1V) less steep than the maximum allowable slope. If surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person will determine the degree to which the actual slope must be reduced below the maximum allowable slope and will assure that such reduction is achieved. Surcharge loads from adjacent structures must be evaluated in accordance with 29 CFR 1926.651(i).

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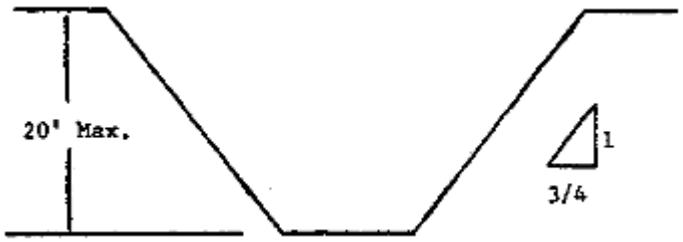
Configurations

Configurations of sloping and benching systems must be as follows.

Note: All slopes stated below are in the horizontal to vertical ratio.

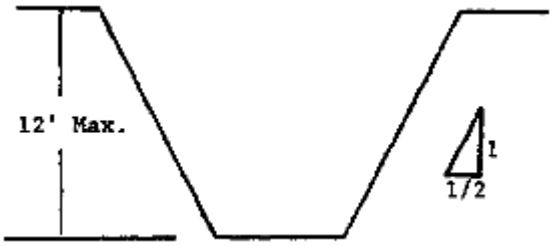
Excavations Made in Type A Soil:

All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾:1:



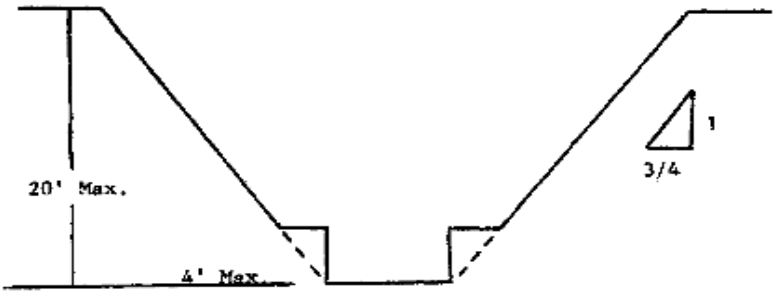
SIMPLE SLOPE -- GENERAL

Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1:

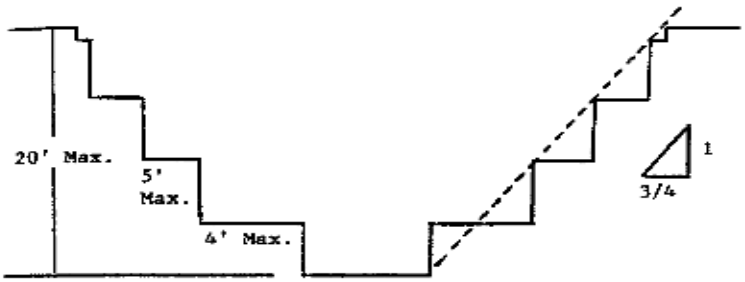


SIMPLE SLOPE -- SHORT TERM

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:



SIMPLE BENCH



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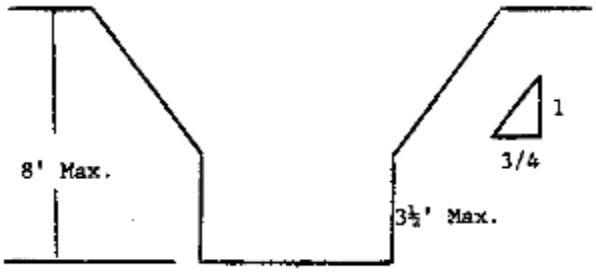
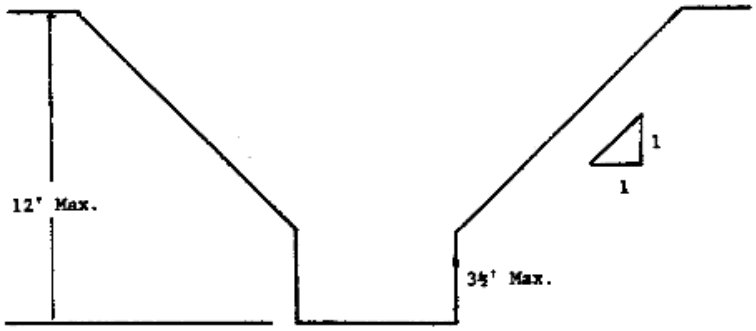
MULTIPLE BENCH

All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet:



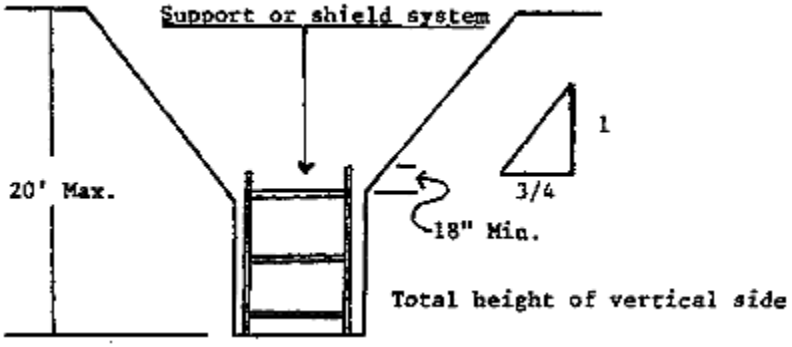
UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 8 FEET IN DEPTH

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet:



UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 12 FEET IN DEPTH

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side:



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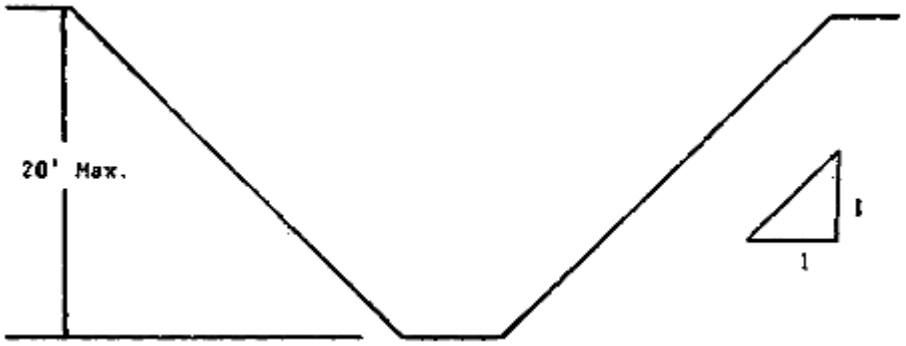
SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

All other simple slope, compound slope, and vertically sided lower portion excavations must be in accordance with the other options permitted under 29 CFR 1926.652(b).

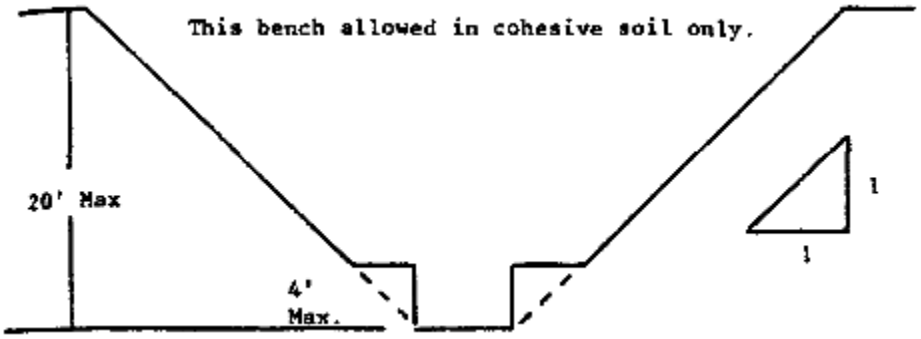
Excavations Made in Type B Soil

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1:

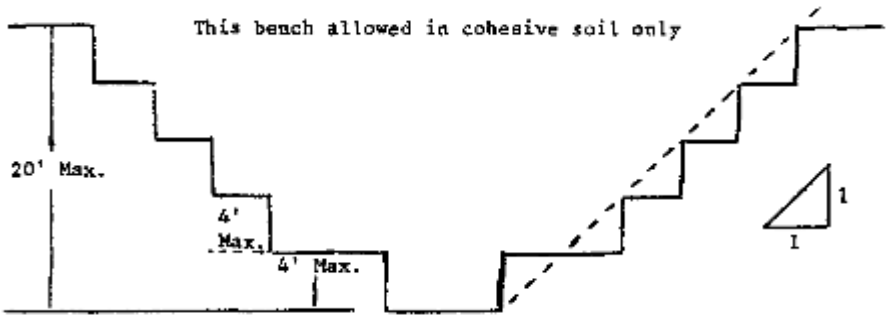


SIMPLE SLOPE

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:



SINGLE BENCH



MULTIPLE BENCH

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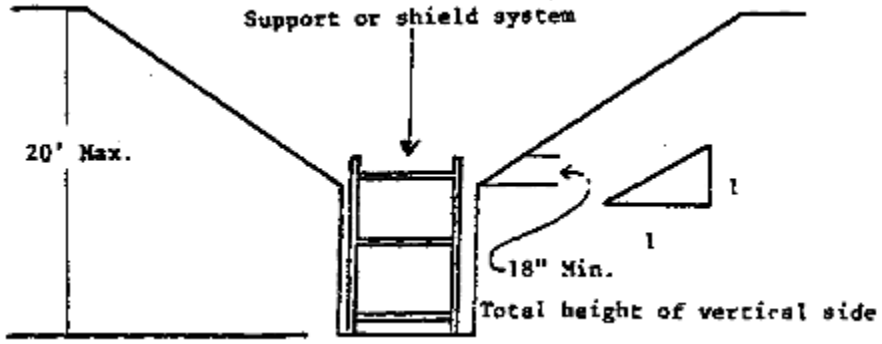
All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

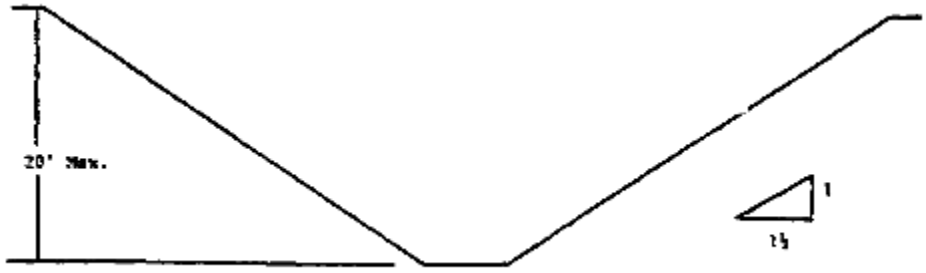


VERTICALLY SIDED LOWER PORTION

All other sloped excavations shall be in accordance with the other options permitted in 29 CFR 1926.652(b).

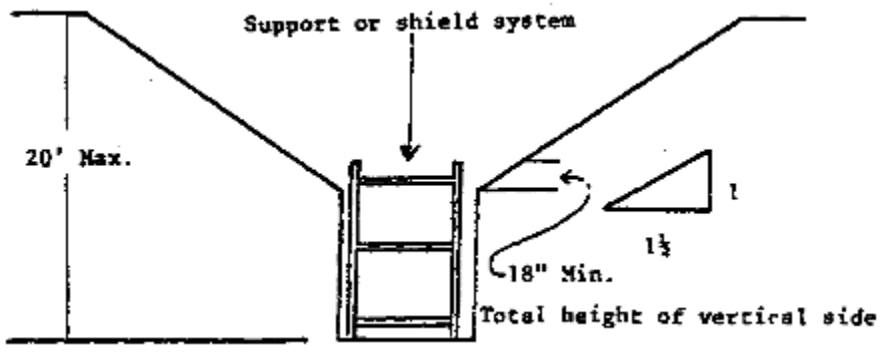
Excavations Made in Type C Soil

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1:



SIMPLE SLOPE

All excavations 20 feet or less in depth 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. All such excavations shall have a maximum allowable slope of 1½:1.



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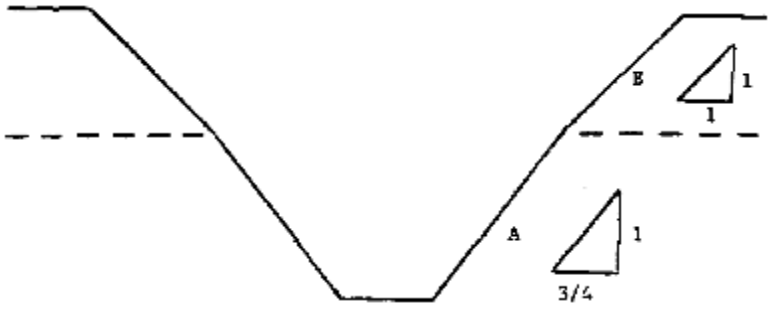
VERTICAL SIDED LOWER PORTION

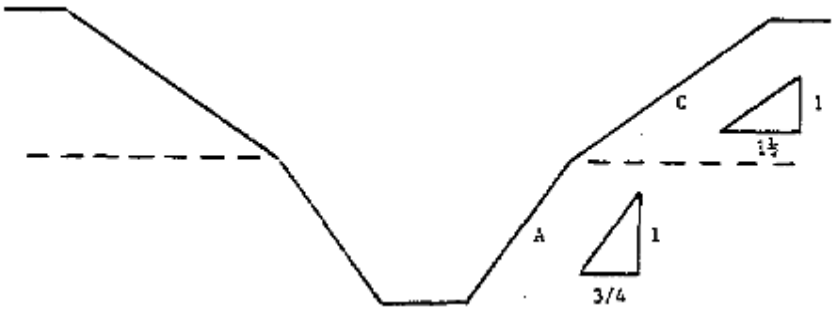
All other sloped excavations shall be in accordance with the other options permitted in 29 CFR 1926.652(b).

Excavations Made in Layered Soils

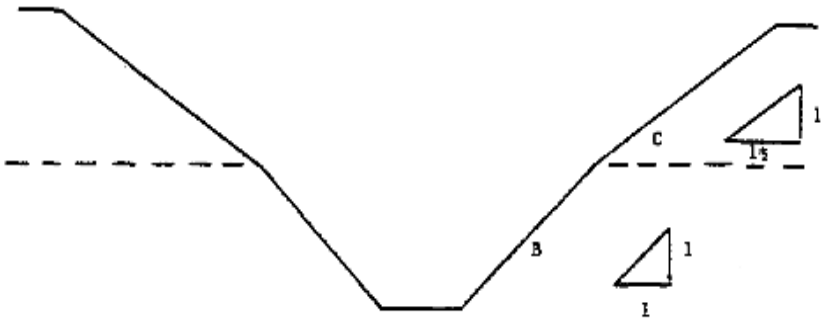
All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below:



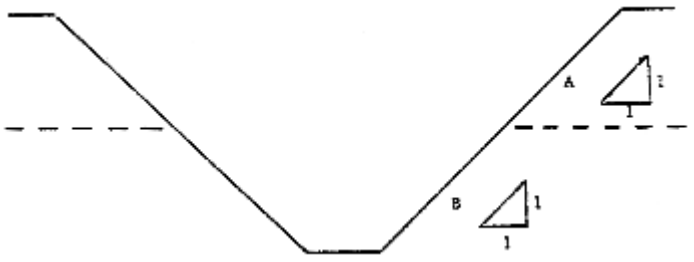
B OVER A



C OVER A



C OVER B



A OVER B

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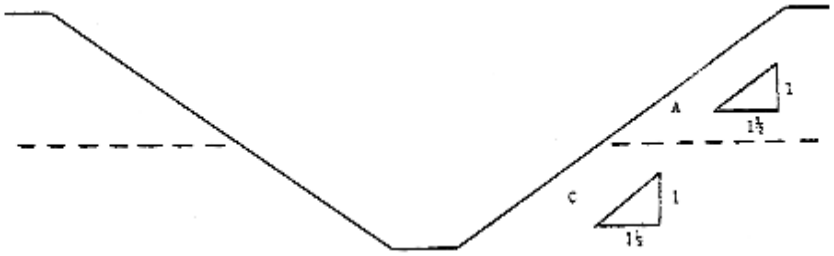
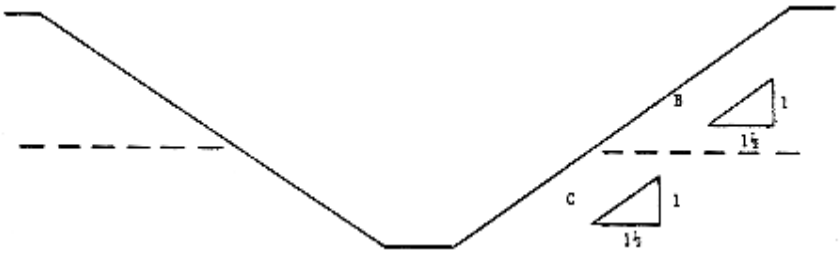


A OVER C



B OVER C

All other sloped excavations shall be in accordance with the other options permitted in 29 CFR 1926.652(b).

Timber Shoring for Trenches

If timber shoring must be used as a method of protection from cave-ins in trenches, it cannot be used in trenches that exceed 20 feet in depth. We will reference Appendix C of 29 CFR 1926 Subpart P when design of timber shoring protective systems is to be performed using Option 1 in accordance with 29 CFR 1926.652(c)(1). Any other timber shoring configurations, other systems of support such as hydraulic and pneumatic systems, and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in 29 CFR 1926.652(b) and 29 CFR 1926.652(c).

Aluminum Hydraulic Shoring for Trenches

If, aluminum hydraulic shoring must be used as a method of protection from cave-ins in trenches, it cannot be used in trenches that exceed 20 feet in depth. We will reference Appendix D of 29 CFR 1926 Subpart P when design of the aluminum hydraulic protective system cannot be performed in accordance with 29 CFR 1926.652(c)(2).

Responsibilities of Competent Person

The competent person's responsibilities include:

a. Conducting inspections of the excavations, adjacent areas, and protective systems before the start of work; and, as needed throughout the shift; and at least daily for potential cave ins, failures, hazardous atmospheres, or other hazards.
b. Taking prompt corrective action or remove employees from recognized hazards.

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Additionally, the competent person must be able to demonstrate the following:

a. The ability to recognize all possible hazards associated with excavation work and to test for hazardous atmospheres. If appropriate, test will be conducted for air contaminants (oxygen, flammable gases, etc.) and provide ventilation when necessary.
b. Knowledge of the current safety orders pertaining to excavation and trenching.
c. The ability to analyze and classify soils.
d. Knowledge of the design and use of protective systems.
e. The authority and ability to take prompt corrective action when conditions change.

Before work begins, the competent person will ensure that employees are protected from hazards associated with water accumulation.

Employees are not work allowed in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.

The precautions necessary to protect employees adequately vary with each situation but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations will be monitored by the competent person to ensure proper operation.

Lastly, if excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation.

Excavations subject to runoff from heavy rains will require an inspection by a competent person.

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Extension Cords

29 CFR 1926.405 - Wiring methods, components, and equipment for general use

29 CFR 1926.416 - General requirements

Extension cords will not replace permanent wiring and the following safety precautions will be adhered to:

a. Inspect the cord for cracks and cuts.
b. Cord must have a three-prong plug for grounding.
c. Use the shortest continuous length of cord possible. Cords may not be spliced together.
d. Make certain the cord does not lay in water.
e. Ensure cord is properly rated for the job.
f. Secure and route cords out of the traffic flow to prevent tripping.
g. Defective cords will be tagged and removed from service.
h. Most importantly, an extension cord used on a job site MUST be used with a ground fault circuit interrupter (GFCI).

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Fatigue Management

During initial orientation, and annually, thereafter, employees will receive training on fatigue.

The initial and annual training, taught by a qualified, competent person, will address:

a. How to recognize fatigue.
b. How to control fatigue through appropriate work and personal habits.
c. Reporting of fatigue to supervision.

By reducing or eliminating fatigue at the work site, it is anticipated that there will be an increase in mental fitness, a reduction in employee turnover and absenteeism, and, of course, improved safety compliance with a reduction in accidents.

Per the National Institutes of Health (NIH), fatigue is feeling tired, weak, exhausted, weary, and/or worn out.

Acute Fatigue is normal tiredness with occasional symptoms that begin quickly and last for a short time. The cure for acute fatigue is rest.

Chronic Fatigue [chronic fatigue syndrome] is a disorder that causes extreme fatigue. This fatigue is **not** the kind of tired feeling that goes away after you rest. Instead, it lasts a long time and limits your ability to do ordinary daily activities. Fatigue may also accompany other conditions, including anemia, or cancer, or may result from medicines or emotional problems. Chronic fatigue cannot be addressed in an occupational setting. The employee with chronic fatigue must seek medical attention.

Controlling Fatigue:

In the work setting, it is impossible to address mild fatigue that is caused as a result of an illness such as flu. However, supervisors should be aware of fatigue symptoms and insist that persons with contagious diseases stay home and not infect healthy employees.

Employee Responsibilities

Employees, at all times, are **required** to report to work alcohol and illegal drug free. Failure to do so will result in disciplinary action up to and including dismissal.

Employees are **encouraged** to report to work well rested and in good physical health.

Employees taking over-the-counter medication or prescription medication that may cause tiredness or fatigue are to report this fact to their supervisor.

Employees are not to chronically use over the counter or prescription drugs and any other products which may affect their ability to perform their work safely.

Employees are **discouraged** from taking any substance known to increase fatigue including fatigue that sets in after the effects of the drug wears off.

Employees who realize they are fatigued are to report this to their supervisor. It is the responsibility of employees in safety critical positions to report fatigue/tiredness and lack of mental acuity to supervision.

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Supervisor Responsibilities

Supervisors are to be vigilant for indications of employee fatigue, i.e., sloppy work, nodding, glazed eyes, inattention, etc.

Supervisors will, to the extent possible, attempt to balance the employee's life needs outside of the work arena with the need of the company to provide its service (Staff/Work Balance). This can be accomplished by limiting work hours and controlling job rotation schedules to allow for sufficient sleep with the goal of reducing fatigue.

Supervisors will ensure that employees who report that they are fatigued are not penalized and will be provided a short rest period.

Supervisory personnel are to make critical safety decisions and take appropriate action to prevent loss.

Management Responsibilities

When planning a specific job, an analysis of work tasks will be completed initially and periodically during the job to control fatigue.

This would include ergonomic equipment used to improve workstation conditions such as anti-fatigue mats for standing, lift devices for repetitive lifting, proper lighting, control of temperature and humidity, and other ergonomic devices as deemed necessary.

Consideration will be given during the planning stage to providing chairs for employees to sit in during periodic rests breaks to control fatigue and increase mental fitness.

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Flagmen - Traffic Control

Manual on Uniform Traffic Control Devices, Millennium Edition

The primary function of traffic control procedures is to move vehicles & pedestrians safely & expeditiously through or around temporary traffic control zones while protecting on-site workers & equipment. Before work is started, a site assessment will be made to identify potential hazards in & around the work zone. Construction areas will be posted with legible traffic signs at points of hazard & protected by traffic control devices. All traffic control signs or devices used for protection of construction workers must conform to Part VI of the **Manual on Uniform Traffic Control Devices, Millennium Edition**; 2009, revised May 2012.

For daytime work, the flagger's vest, shirt, or jacket will be orange, yellow, strong yellow green or fluorescent versions of these colors. For nighttime work, similar outside garments will be retroreflective. The retroreflective material will be orange, yellow, white, silver, strong yellow-green or a fluorescent version of one of these colors & will be visible at a minimum distance of 1,000 feet. The retroreflective clothing will be designed to clearly identify the wearer as a person & be visible through the full range of body motions.

Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important. Uniformed law enforcement officers may also be used on freeways where traffic is channeled around work sites & it is necessary to assure that advisory & regulatory speeds are being enforced. For nighttime work & in low-visibility situations, a retroreflective garment as described above should be worn.

When work activity occurs on or adjacent to a surface being used by the public, we are responsible for providing flagger(s) to direct traffic. Hand-signaling devices, such as STOP/SLOW paddles, lights, & red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device.

Hand-signaling devices, such as STOP/SLOW paddles, lights, & red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device. The standard STOP/ SLOW sign paddle will be 18 inches square with letters at least 6 inches high. A rigid handle should be provided. This combination sign should be fabricated from light semi-rigid material & will have an octagonal shape. The background of the STOP face will be red with white letters & border. To be better seen, the STOP/SLOW paddles may be supplemented by one or two symmetrically positioned alternately flashing white high-intensity lamps on each side. The background of the SLOW face will be orange with black letters & border. When used at night, the STOP/ SLOW paddle will be retro reflectorized in the same manner as signs.

Flag use should be limited to emergency situations & at low-speed and/or low-volume locations which can best be controlled by a single flagger. Flags used for signaling will be a minimum of 24 inches square, made of a good grade of red material, & securely fastened to a staff about 3 feet long. The free edge should be weighted so the flag will hang vertically, even in heavy winds. When used at night, flags will be retroreflective red.

All workers involved in traffic control, including flaggers, will be provided training. Training will involve the planning, setup, operation, maintenance or removal of traffic control to the level of their responsibility.

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Ground Fault Circuit Interrupters

29 CFR 1926.404 - Wiring design and protection

Ground Fault Circuit Interrupters (GFCI):

Note: Our company uses ground fault circuit interrupters.

A ground fault circuit interrupter (GFCI) provides protection for all 120-volt, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring by detecting lost current resulting from a short, overheating, and/or ground fault. It should be noted that an extension cord into which electrical devices are plugged are not part of the permanent wiring; therefore, GFCI's are required. A GFCI will "trip" when the amount of current amperes going to an electrical device in the hot conductor and the amount of current returning from an electrical device differs by approximately 5 milliamps. The GFCI can interrupt the current within as little as 1/40th of a second.

The current that is missing is being lost through a ground fault, whether it is in the actual grounding, a short in the equipment, or electricity going through the employee to the ground. A GFCI will not protect an employee who comes in contact with two hot wires or a hot wire and a neutral wire. A GFCI will provide protection against fires, overheating, damage to insulation, and, the most common form of electrical shock hazard -- the ground fault. GFCI’s must be tested before use.

In the event that we are performing work in a chemical plant or some other type of facility where a grounding conductor program is required, we will use the program on the following pages.

Assured Equipment Grounding Conductor Program:

Per paragraph (b)(1)(i), 29 CFR 1926.404, *Wiring Design and Protection*, ground fault protection for our employees will be provided by the use of ground fault circuit interrupters or an Assured Equipment Grounding Conductor Program.

As a general rule, the use ground fault circuit interrupters is sufficient for employee protection. However, if we are working within a facility that requires the use of an Assured Equipment Grounding Conductor Program or if the client requires an Assured Equipment Grounding Conductor Program, the following applies.

The provisions of our Assured Equipment Grounding Conductor Program cover all cord sets, receptacles which are not a part of a building or structure, and equipment which is connected by cord and plug for use, or used by, our employees on our construction sites.

Note: A daily visual inspection will be made of the following to determine any external defects or indications of internal damage prior to use: Cord sets, attachment cap, plug & receptacle of cord sets & any other equipment connected by cord & plug (with the exception of cord sets & receptacles which are fixed & not exposed to damage) such as deformed or missing plug, insulation damage. Damaged items will be tagged 'DO NOT USE', removed from service until repaired and tested.

A copy of this program will be maintained at all job sites where it is in use and it will be available for review by affected employees as well as inspection and copying by authorized representatives of OSHA. At least one competent person (one who by virtue of training or experience is capable of identifying existing and predictable hazards as they relate to electrical safety and has the authorization to take prompt corrective measures to eliminate them) will be designated to implement our program. This person or persons will be identified on our Job Site Form, Designation of Competent Persons.

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The designated competent person(s) will ensure that:

a. 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 before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective will be disposed of or be tagged out of service and not used until repaired.
b. 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:
    1. All equipment grounding conductors will be tested for continuity. Equipment grounding conductors must be electrically continuous.
    2. Each receptacle and attachment cap or plug will be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor must be connected to its proper terminal.
c. The above tests will be performed:
    1. Before first use;
    2. Before equipment is returned to service following any repairs;
    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
    4. 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.

Employees are not permitted to use any equipment which falls within the scope of this program which has not passed the above tests and inspections noted in paragraphs a., b., and c., above. Faulty equipment will be immediately discarded or tagged as faulty and immediately sent for repair.

The above tests and inspections must be recorded. The test record will identify each receptacle, cord set, and cord and plug connected equipment that passed the test and will indicate the last date it was tested or the interval for which it was tested.

The test record will be kept by logs, color coding, or other effective means. Only the latest log must be available at the job site for inspection and review by affected employees or OSHA representatives. Previous logs may be destroyed.

While a written log identifying the equipment and the test date is acceptable, using colored electrical tape on cords, receptacles and equipment indicating the time period of the tests might be easier to accomplish and less confusing.

The competent person will ensure that outlet devices have an ampere rating not less than the load to be served and that they comply with the following:

Single Receptacles means a single receptacle installed on an individual branch circuit will have an ampere rating of not less than that of the branch circuit.

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Two or more Receptacles means where connected to a branch circuit supplying two or more receptacles or outlets, receptacle ratings will conform to the values listed in below table.

Receptacles used for the connection of motors means the rating of an attachment plug or receptacle used for cord- and plug- connection of a motor to a branch circuit will not exceed 15 amperes at 125 volts or 10 amperes at 250 volts if individual overload protection is omitted.

Receptacle Ratings for Various Size Circuits	
Circuit Rating Amperes	Receptacle Rating Amperes
15	Not over 15
20	15 or 20
30	30
40	40 or 50
50	50

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Hazardous Job Site Chemical Awareness and Exposure

As part of process safety management of highly hazardous chemicals, our employees will be given training on negating the hazards relating to possible chemical exposures in the areas in which we are working.

This training on the facility operator's emergency/contingency plan would include identification of the various hazardous chemicals, their location, specific actions to take should there be an inadvertent spill, leak, or release of hazardous chemical gases. Also, during this pre-work training, all facility safety rules would be explained.

Actions would include notification of personnel, evacuation of personnel in the area to a safe zone, training on the specific chemicals that may be released. The importance of wind direction, whether the gas is heavier or lighter than air, flammable or explosive, corrosive, means to detect the gas such as odor (and use of personal gas monitors), means to protect the employees through PPE, especially respiratory protection and the use of full-face respirator (gas mask) with an organic vapor canister or self-contained breathing apparatus or airline respirator escape SCBA.

Per *Hazard Communication*, located at **29 CFR 1910.1200**, we will keep on site, and a readily available SDS for each chemical to which we may be exposed. This information will be provided by the facility operator.

Ammonia Awareness

NIOSH Pocket Guide to Chemical Hazards – Ammonia

Ammonia is found in chemical plants, pharmaceutical, and industrial plants as well as refineries. Some of its uses are as a refrigerant, fertilizer, a chemical for making nitrogen containing compounds, and scrubbing SO_2 from the burning of fossil fuels.

Ammonia is a colorless gas with a pungent, suffocating odor.

Ammonia can cause harm if inhaled and/or it comes into contact with the eyes or skin.

Health Effects:

Respiratory Effects: Acute lung damage/edema; Asthma, pulmonary fibrosis, bronchiolitis.

Irritation: Eye, Nose, Throat, Bronchi, Skin.

Temporary Blindness.

Affected Organs:

Respiratory system, eyes, & skin.

Potential Symptoms:

Eye, nose, throat irritation; corneal burns, increased intraocular pressure; coughing; laryngeal edema; dyspnea, bronchospasm; chest pain; pulmonary edema or pneumonitis; pink frothy sputum; & skin burns.

First Aid:

Eye: Irrigate immediately (solution/liquid)

Skin: Water flush immediately (solution/liquid)

Breathing: Respiratory support

Swallow: Medical attention immediately (solution)

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Personal Protective Equipment:

Appropriate personal protective equipment that will adequately protect employees during routine operations and anticipated emergencies when the is a possibility of contact with liquid ammonia or vessels containing liquid ammonia would include, at a minimum, the following which should be easily accessible: gloves, protective slicker or protective pants and jacket (impervious to ammonia); goggles and/or face shield; and full-face respiratory protection with appropriate cartridges.

Install, inspect, and maintain easily accessible emergency shower and plumbed eyewash or at least 150 gal. of clean water in an open top container.

A Self-Contained Breathing Apparatus (SCBA) may be required if there is potential for entry into an atmosphere that contains ammonia concentrations in excess of the immediately dangerous to life or health (IDLH) value [300 ppm].

Respiratory Protection:

Per 29 CFR 1910.1000 Z-1 Table, the OSHA Permissible Exposure Limit (PEL) for Ammonia is: 50 ppm; 35 mg/m^3 TWA

Up to 250 ppm:

(APF = 10) Any chemical cartridge respirator with **green** cartridges.

(APF = 10) Any supplied-air respirator*

Up to 300 ppm:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode.

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern.

(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern.

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern.

(APF = 50) Any self-contained breathing apparatus with a full facepiece.

(APF = 50) Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern.

Any appropriate escape-type, self-contained breathing apparatus.

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The below is extracted from 29 CFR 1910.119, App A, List of Highly Hazardous Chemicals, Toxics and Reactive (Mandatory). This Appendix contains a listing of toxic and reactive highly hazardous chemicals which present a potential for a catastrophic event at or above the threshold quantity.

Chemical Name	CAS	Threshold Quantity
Ammonia, Anhydrous	**7664-41-7**	**10000 Pounds**
Ammonia solutions (greater than 44% ammonia by weight)	**7664-41-7**	**15000 Pounds**
Ammonium Perchlorate	**7790-98-9**	**7500 Pounds**
Ammonium Permanganate	**7790-98-9**	**7500 Pounds**

Anhydrous means without water.

Because of the potential for a catastrophic event, the release of ammonia at the threshold quantities above would be covered under both Process Safety Management as well as HAZWOPER Response.

As part of process safety management of highly hazardous chemicals, prior to actual work in a facility where possible exposures to highly hazardous chemicals exist, our employees will be given training on negating the hazards relating to possible chemical exposures in the areas in which we are working by the facility operator.

The training on the facility operator's **emergency/contingency plan** would include identification of the various hazardous chemicals, their location, specific actions to take should there be an inadvertent spill, leak, or release of hazardous chemical gases.

Also during this pre-work training, all facility safety rules would be explained. This would include notification of personnel, evacuation of personnel in the area to a safe zone, and training on the specific chemicals that may be released.

The chemical specific training must include: the importance of wind direction; whether the gas is heavier or lighter than air, flammable or explosive, corrosive; means to detect the gas such as odor (and use of personal gas monitors); means to protect the employees through PPE, especially respiratory protection and the use of full face respirator (gas mask) with an organic vapor canister or self-contained breathing apparatus or airline respirator escape SCBA.

Per our Hazard Communication Plan, we will keep on site, and readily available, SDS for each chemical to which we may be exposed. This information will be provided by the facility operator.

If a monitor alarm sounds, the employee will follow the emergency procedures in place by the host contractor which would include donning an appropriate respirator, vacating the area, and notifying others. If there is a potential for an uncontrolled release of ammonia, this situation could represent an emergency. Such an emergency release would be covered under 29 CFR 1910.120, the Hazardous Waste and Emergency Response (HAZWOPER) standard [and the employee will follow the host's established procedure for emergency evacuation and response], unless it were an incidental release, as defined in the standard, 29 CFR 1910.120(a)(3), where there is no potential safety or health hazard. Paragraph (q) of 29 CFR 1910.120 covers emergency responses regardless of location.

Employees must be aware of the owner's specific contingency/emergency plans.

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Arsenic Awareness

This program applies to all occupational exposures to arsenic except that this section does **not apply** to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

Exposures to arsenic may occur:

a. during weighing and transfer operations.
b. during maintenance operations. Arsenic-containing contaminants may accumulate in pump oil, the nitrogen trap, oil-bubbler, furnace, or exhaust vent line systems.
c. as a result of ampoule explosion/implosion.
d. while cleaning crystal growers.
e. during ampoule breakout.
f. during loading, unloading, or failure of the glove-box system.
g. during loading or unloading of the reactor.
h. during back lapping.

The health hazard to arsenic is high. Acute exposures to arsenic compounds by ingestion may result in burning lips, throat constriction, abdominal pain, dysphagia, nausea, vomiting, diarrhea, convulsions, coma, and death. Irritation of the respiratory tract, skin, and eyes may result from inhalation exposures.

Chronic exposure to arsenic compounds may result in dermatitis, anemia, leukocytopenia, or the effects associated with several forms of cancer.

The Permissible Exposure Limit [PEL] is: Employee is exposure to arsenic at concentrations greater than **10 ug/m³** of air averaged over any 8-hour period

Action Level: a concentration of arsenic of **5 ug/m³** of air averaged over any eight (8) hour period.

No employee may be exposed to any skin or eye contact with arsenic trichloride or to skin or eye contact likely to cause skin or eye irritation.

Note: Even though the airborne PEL for arsenic trichloride is 0.01 mg/m³, when skin contact occurs, overexposure may occur.

Asbestos Awareness

NIOSH Pocket Guide to Chemical Hazards - Asbestos

On some job sites, employees may have potential exposure to asbestos if precautionary steps noted below are not taken. Asbestos can be found in older tile flooring, pipe and mechanical insulation, plaster, fireproofing, soundproofing, roofing materials, and in sprayed-on materials located on beams, in crawl spaces, and between walls. Undisturbed, it is perfectly safe.

Asbestos is not a specific mineral, but rather a fibrous form of various minerals. It is a remarkable product because it is resistant to corrosive chemicals, it is a nonconductor of electricity, it has a high tensile strength (equal to that of steel wire), and is resistant to heat (it will not burn, but will disintegrate at extremely high temperatures). Some forms of asbestos, such as chrysotile, can be spun into thread. In fact, one pound of chrysotile can produce 30,000 feet of thread -- it is that fine.

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Other types of asbestos have fibers which cannot be spun but are excellent for their frictional properties (brakes) and their insulation and sound deadening properties. The actual minerals found in asbestos include iron, magnesium, silica, and water. Asbestos is a truly remarkable product which has been serving mankind since the ancient Greeks and Romans.

Unfortunately, asbestos has a downside that has been discovered and statistically documented in recent years – it is hazardous to your health.

There are two types of asbestos: friable and non-friable.

Friable asbestos can be crumpled with hand pressure and is likely to emit minute fibers can cause serious long-term health effects. Fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable.

Non-friable asbestos, undisturbed, poses no health risk. Vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

The health hazards associated with asbestos are caused by the microscopic fibers which, when released, enter the deepest portion of the lung (past your natural defenses such as hairs, mucus, cilia, and macrophages). Scar tissues can develop, and the lung stiffens thus reducing gas exchange. This is called asbestosis. Another disease associated with asbestos is lung cancer.

High exposure levels of asbestos increase one's chance of lung cancer by a factor of five. Mesothelioma, a disease caused primarily by exposure to amosite and crocidolite, can be fatal. Lastly, though not likely, it is possible to get cancer of the stomach and colon. The health hazards associated with asbestos are chronic and, as such, present themselves after a long period of time.

Asbestos Awareness Training is required for all employees who work in areas that contain or may contain asbestos. This training will be documented.

Steps to avoid asbestos exposure:

a. Under no circumstances will asbestos containing material (ACM) or presumed asbestos containing material (PACM) be disturbed during work activities.
b. If you believe the materials you will be working with contain asbestos, do not disturb the material and contact your supervisor.
c. Obey all asbestos warning signs and labels. ACM and PACM will not be disturbed.
d. If our employees are working on a multi-contractor worksite adjacent to a Class I asbestos abatement job and possible exposure occurs because of inadequate containment (an unlikely scenario because not only would the containment be faulty, the negative pressure system would have to fail), they are to immediately remove themselves from the area until the breach and containment systems is repaired.
e. All exposure to thermal system insulation, sprayed-on, and troweled-on surfacing material will be assumed to be asbestos exposure unless results of laboratory analysis show that the material does not contain asbestos.

For the record, permissible exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30-minute work period.

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Benzene Awareness

NIOSH Pocket Guide to Chemical Hazards - Benzene

Benzene is a toxic, flammable, colorless liquid or gas that has an aromatic odor. It is not soluble in water.

Short term health effects include eye and skin irritation. More acute effects include headache, vertigo, and depression of the central nervous system. Chronic health effects include poisoning and damage to the central nervous system. Medical aid should be sought immediately.

PPE would include gloves, goggles, protective clothing, protective boots, aprons and face shields.

Respiratory protection would include:

a. Self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive pressure mode.
b. Supplied air respirator that has a full facepiece and is operated in a pressure-demand other positive-pressure mode in combination with an auxiliary self-contained positive–pressure breathing apparatus.
c. Air-purifying, full-facepiece respirator (gas mask) with a chin style, front or back-mounted organic vapor canister.
d. An appropriate escape-type, self-contained breathing apparatus.

Because Benzene liquid is highly flammable and vapors are explosive, no smoking is allowed in areas when Benzene is used of stored. Fire extinguishers must be readily available.

Cadmium Awareness

NIOSH Pocket Guide to Chemical Hazards – Cadmium

Cadmium, a noncombustible solid metal, is an odorless, yellow/brown, finely divided particulate dispersed in air.

Health Effects:

Acute: Metal fume fever may result from acute exposure with flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. Acute pulmonary edema usually develops within 24 hours and reaches a maximum by three days. If death from asphyxia does not occur, symptoms may resolve within a week.

Chronic: The most serious consequence of chronic cadmium poisoning is cancer (lung and prostate). The first observed chronic effect is generally kidney damage, manifested by excretion of excessive (low molecular weight) protein in the urine. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalcia and osteoporosis). Cadmium may also cause anemia, teeth discoloration (Cd forms CdS) and loss of smell (anosmia).

Workers should wash daily at the end of each work shift, and prior to eating, drinking, smoking, etc.

Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premises.

Because the route of exposure is inhalation, respiratory protection is critical.

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The below chart is extracted from NIOSH Pocket Guide to Chemical Hazards, Appendix E, OSHA Respirator Requirements for Selected Chemicals. This chart indicates the required respiratory protection as it relates to the airborne concentration or condition of use:

Cadmium (1910.1027 & 1926.1127)

Airborne Concentration or Condition of Use	**Required Respirator**
< or = 50 µg/m^3 (micrograms per cubic meter)	Half-mask, air-purifying respirator equipped with a high-efficiency filter*.
< or = 125 µg/m^3	**(1)** Powered air-purifying respirator with a loose-fitting hood or helmet equipped with a high-efficiency filter*; or **(2)** Supplied-air respirator with a loose-fitting hood or helmet facepiece operated in continuous-flow mode.
< or = 250 µg/m^3	**(1)** Full-facepiece air-purifying respirator equipped with a high-efficiency filter*; **(2)** Powered air-purifying respirator with a tight-fitting half-mask equipped with a high-efficiency filter*; or **(3)** Supplied-air respirator with a tight-fitting half-mask operated in continuous-flow mode.
< or = 1,250 µg/m^3	**(1)** Powered air-purifying respirator with a tight-fitting full facepiece equipped with a high-efficiency filter*; or **(2)** Supplied-air respirator with a tight-fitting full facepiece operated in continuous-flow mode.
< or = 5,000 µg/m^3	Supplied-air respirator with half-mask or full facepiece operated in pressure-demand or other positive-pressure mode.
> 5,000 µg/m^3 or unknown concentration	**(1)** Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode; or **(2)** Supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode and equipped with an auxiliary escape-type self-contained breathing apparatus operated in pressure-demand mode.
Firefighting	Self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive-pressure mode.

Note: Quantitative fit testing is required for all tight-fitting air-purifying respirators where airborne concentration of cadmium exceeds 10 times the TWA PEL (10 X 5 µg/m^3 = 50 µg/m^3). A full-facepiece respirator is required when eye irritation is expected.

A high-efficiency filter means a filter that is at least 99.97% efficient against mono-dispersed particles of 0.3 µm (micrometers) in diameter or higher.

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Chromium (VI) Awareness

NIOSH Pocket Guide to Chemical Hazards – Chromium

Welding, cutting, and heating of metals of toxic significance like Chromium (lead, zinc, cadmium, mercury, beryllium, or exotic metals or paints) in enclosed spaces will require either general mechanical ventilation of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits **or** local exhaust ventilation consisting of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system will be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

This would include inert-gas metal-arc welding performed on stainless steel to protect against dangerous concentrations of nitrogen dioxide.

When performing welding operations on stainless steel and there is exposure to airborne chromium (VI) above its action level of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA), the provisions of 29 CFR 1926.1126 must be adhered to. The PEL is 5 $\mu g/m^3$. If air monitoring, as described in 29 CFR 1926.1126 is below .5 $\mu g/m^3$, the provisions of this standard do not apply.

Crystalline Silica Awareness

Silica, Crystalline (Respirable Size), National Institute of Health

Crystalline Silica can be readily found on many job sites in rocks, as well as many concrete and masonry products. Crystalline Silica can be released in the air when employees are performing such tasks as:

a. Chipping, hammering, drilling, crushing, or hauling rock.
b. Abrasive blasting.
c. Sawing, hammering, drilling, or sweeping concrete or masonry.

Unprotected respiratory exposure to crystalline silica may cause a lung disease called silicosis as well as cancer and death.

Occupational silica exposure is completely preventable through employee training, use of a silica substitute, use of engineering controls, improved work practices, and, lastly, use of personal protective equipment.

Employees who are potentially exposed to an environment containing airborne concentrations of silica will receive training prior to working with silica and receive periodic refresher training after work has started.

Silica training will include the following.

a. Exposure monitoring for respirable silica:
    1. Full shift personal samples will be taken that are representative of the employee's regular, daily exposure to silica. A certified industrial hygienist will use a combination device, called a cyclone assembly, and a sampling pump to trap tiny respirable silica particles from the air in the work environment.
    2. The cyclone assembly and sampling pump will be placed on an employee who will wear the device throughout the work shift for up to 8 hours.
    3. Sampling requires that just a select few employees who are closest to the silica source be fitted. The industrial hygienist can help you determine who will be most appropriate.

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4. At the end of the sampling period, the hygienist will de-activate the sampling pump and remove the filters, which will be sent to a certified laboratory for analysis.
5. Employee exposures to concentrations of silica must be kept below the permissible exposure limits found in 1910.1000 - Table Z-3, below:

Table Z-3 Mineral Dusts

Substance	***mppcf a***	***mg/m3***
Silica:		
Crystalline		
Quartz (Respirable)	*250b*	*10 mg/m3 e*
	%SiO2+5	*%SiO2+2*
Quartz (Total Dust)	*. . . . . .*	*30 mg/m3*
		%SiO2+2
Cristobalite: Use ½ the value calculated from the count or mass formulae for quartz.		
Tridymite: Use ½ the value calculated from the formulae for quartz.		
Amorphous, including natural diatomaceous earth	*20*	*80 mg/m3*
Substance	***mppcf a***	***mg/m3***
		%SiO2
Silicates (less than 1% crystalline silica):		
Mica	*20*	
Soapstone	*20*	
Talc (not containing asbestos)	*20c*	
Talc (containing asbestos) Use asbestos limit		
Tremolite, asbestiform (see 29 CFR 1910.1001)		
Portland cement . . .	*50*	
Graphite (Natural)	*15*	
Coal Dust:		
Respirable fraction less than 5% SiO2	*. . . . . .*	*2.4 mg/m3 e*
Respirable fraction greater than 5% SiO2 . . .	*. . . . . .*	*10 mg/m3 e*
		%SiO2+2
Inert or Nuisance Dust:		
Respirable fraction	*15*	*5 mg/m3*
Total dust	*50*	*15 mg/m3*

Note: Conversion factors - mppcf X 35.3 = million particles per cubic meter = particles per c.c.

[a]Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.

[b]The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.

[c]Containing less than 1% quartz; if 1% quartz or more, use quartz limit.

[d]All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.

[e]Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit density sphere)	Percent passing selector
2	90
2.5	75
3.5	50
5.0	25
10	0

The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m3 in the table for coal dust is 4.5 mg/m3.

b. The health hazards associated with respirable silica are silicosis, lung cancer, pulmonary tuberculosis and other airway diseases.

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Silicosis is caused by exposure to respirable crystalline silica dust. Crystalline silica is a basic component of soil, sand, granite, and most other types of rock, and it is used as an abrasive blasting agent. Silicosis is a progressive, disabling, and often fatal lung disease. Cigarette smoking adds to the lung damage caused by silica.

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

Three types of Silicosis:

Chronic Silicosis: Usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations

Accelerated Silicosis: Results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure.

Acute Silicosis: Occurs where exposure concentrations are the highest and develops after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica.

c. The exposure limits for respirable silica:

See **1910.1000 Table Z-3.**

Permissible Exposure Limit (PEL) = Crystalline Quartz (respirable): 250 mppcf (millions of particles per cubic feet of air)/(%SiO2 +5); 10 mg/m3/(%SiO2 + 2);

Quartz (total dust): 30 mg/m3/(%SiO2 + 2);

Cristobalite and Tridymite: Use 1⁄2 the value calculated from the count or mass formula for quartz

d. Acceptable substitutes for silica.

The many types of abrasive materials have varying degrees of health hazards – silica sand being probably the most hazardous mineral abrasive used.

Whenever possible, its use should be limited and, if possible, a substitute material used. Other types of abrasives include synthetic or natural mineral grains, metallic shot or hard grit (made of steel or chilled cast iron), and organic abrasives such as ground corncobs and walnut shells. These and other engineering controls such as containment and ventilation are important for employee safety.

e Engineering controls.

It is important to note that silica is only hazardous in its airborne form. Engineering controls would include local exhaust ventilation and blasting cabinets.

Establishing a clearly identified exposure area.

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f. Work practice controls.

   Use of water sprays, wet methods for cutting, chipping, drilling, sawing, grinding, etc.

   Eating, drinking, or smoking near crystalline silica dust is prohibited.

   Employees will wash hands and face before eating, drinking or smoking away from silica exposure area.

g. Personal protective equipment.

   The **only health hazard from silica is respiratory**, therefore appropriate half-face or full face respiratory will be used.

   1. Up to 0.5 milligrams per cubic meter of air (mg/m^3) of airborne exposures to crystalline silica:

      Half-facepiece particulate respirators with N95 or better filters

   2. Up to 1.25 milligrams per cubic meter of air (mg/m^3) of airborne exposures to crystalline silica:

      Any powered, air-purifying respirator with a high-efficiency particulate filter.

      Any supplied-air respirator operated in a continuous-flow mode

   3. Up to 2.5 milligrams per cubic meter of air (mg/m^3) of airborne exposures to crystalline silica:

      Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

      Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

   4. Up to 2.5 milligrams per cubic meter of air (mg/m^3) of airborne exposures to crystalline silica.

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

However, when working with respirable silica, there are many physical hazards and appropriate PPE will be worn to address the hazards presented by the work at hand.

a. Eye protection: Goggles; safety glasses with side shields
b. Head protection: Hard hat
c. Hand protection: Gloves
d. Foot protection: Steel toed work boots
e. Body protection: Tyvek suits/coveralls

Following are NIOSH recommendations for reducing crystalline silica exposures.

NIOSH Safety Recommendations:

NIOSH recommends the following measures to reduce crystalline silica exposures at the job site and prevent silicosis and silicosis-related deaths:

a. Prohibit silica sand (or other substances containing more than 1% crystalline silica) as an abrasive blasting material and substitute less hazardous materials.
b. Conduct air monitoring to measure worker exposures.
c. Use containment methods such as blast-cleaning machines and cabinets to control the hazard and protect adjacent workers from exposure.

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d. Practice good personal hygiene to avoid unnecessary exposure to silica dust.
    1. Wash hands and face before eating.
    2. No eating, drinking or tobacco products in the blasting area.
    3. Shower before leaving work site.
    4. Vehicles parked away from contaminated area.
e. Wear washable or disposable protective clothes at the job site; shower and change into clean clothes before leaving the job site to prevent contamination of cars, homes, and other work areas.
f. Use respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
g. Provide periodic medical examinations for all workers who may be exposed to crystalline silica.
h. Post signs to warn workers about the hazard and to inform them about required protective equipment.
i. Provide workers with training that includes information about health effects, work practices, and protective equipment for crystalline silica.
j. Report all cases of silicosis to the state health department.

Hydrogen Sulfide – H2S Awareness

NIOSH Pocket Guide to Chemical Hazards – Hydrogen Sulfide H2S

Where our employees may have potential exposure to gas hazards such as hydrogen sulfide, training will be given to ensure that these hazards are understood. Hydrogen Sulfide exposures are possible in the following drilling operations or situations: a) recycled drilling mud, b) water from sour crude wells, c) tank gauging (tanks at producing, pipeline & refinery operations), d) field maintenance, and, e) tank batteries and wells, etc..

Hydrogen Sulfide – H2S is toxic, and colorless with the odor of rotten eggs at low concentrations. It is soluble in water and is flammable.

Over time at low concentrations, the ability to smell Hydrogen Sulfide –H2S may diminish therefore, depending on the facility at which we are working a personal or area monitors may be required. These alarms will be pre-set to go off when the PEL exceeds 20 PPM, 1910 (Industry) or 10 PPM (Construction). **When monitor alarms sound, employees are to evacuate the area and no re-enter without proper respiratory protection.**

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Exposure routes are inhalation, eye or skin. Health effects include irritation to the eyes, respiratory system distress, damage to the nerve centers of the brain which controls breathing, apnea, coma, convulsions, eye pain dizziness, and headache. As a liquid, the health effect would be frostbite.

Respiratory protection would include:

a. Self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive pressure mode.
b. Supplied air respirator that has a full facepiece and is operated in a pressure-demand other positive-pressure mode in combination with an auxiliary self-contained positive–pressure breathing apparatus.
c. Air-purifying, full-facepiece respirator (gas mask) with a chin style, front or back-mounted organic vapor canister for hydrogen sulfide.
d. An appropriate escape-type, self-contained breathing apparatus.

Lead Hazard Awareness

Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

OSHA standard **29 CFR 1926.62**, addresses occupational exposure to lead in the construction industry. The word “lead” within this standard refers to elemental lead, all inorganic lead compounds, and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

There may be times when employees are working within the vicinity of lead or lead-containing materials.

Under no circumstances will employees be exposed to lead above the action level which, for lead, is 30 micrograms of lead per cubic meter of air (30 μ/m³), averaged over an 8-hour workday. As a matter of interest, the permissible exposure limit (PEL) for lead is 50 micrograms of lead per cubic meter of air (50 μ/m³), averaged over an 8-hour workday.

Lead found in paints, coatings, and compounds that are undisturbed, pose no risk of hazard exposure and work around these items do not require respirators, special clothing, or negative pressure enclosures.

Care will be taken by all employees to not abrade, remove, touch, or in any way disturb lead or lead containing compounds within the work area.

Contractors who actually abate lead do so under the provisions of the above lead standard which precludes lead from escaping into the surrounding areas by negative pressure enclosures and other methods.

As a point of interest, persons who perform lead abatement have to have received special training, be licensed, and be part of medical surveillance program.

To drive home the point of the importance of leaving lead at the job site undisturbed and avoided, employees must be aware of the health hazards associated with lead exposure.

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The below is extracted from **29 CFR 1910.1025 App A**, *Substance data sheet for occupational exposure to lead*:

> II. HEALTH HAZARD DATA
>
> A. "Ways in which lead enters your body". When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume, or mist it can be inhaled and absorbed through you lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.
>
> B. "Effects of overexposure to lead" - (1) "Short term (acute) overexposure". Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.
>
> (2) "Long-term (chronic) overexposure". Chronic overexposure to lead may result in severe damage to your blood - forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in

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men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood - forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) "Health protection goals of the standard". Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 ug/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg percent or ug percent. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of ug/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead - related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead - related health impairment or disease.

Once your blood lead level climbs above 40 ug/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 ug/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 ug/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead - related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 ug/dl. The provisions of the standard are designed with this end in mind.

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Heavy Construction Equipment

29 CFR 1926.600 - Equipment

All heavy equipment must be inspected prior to use and operated only by authorized personnel.

Heavy construction equipment would include:

a. Bulldozers, Compactors, Front-end loaders, Graders, Haulage, Vehicles (Trucks/Dump Trucks), Scrapers, Skid-Steer Machines, and Tractors.

Bi-directional machines such as front-end loaders and bulldozers will have an audible alarm, distinguishable from the surround noise level which will be used if the operator does not have a clear, unobstructed view or a ground guide indicating that the line of travel is safe.

Scissors points on all front-end loaders which may harm the operator will be guarded as well as all parts exposed to employees such as belts, gears, pulleys, sprockets, spindles, drums, flywheels, chains and other moving parts.

Equipment that is operated from the seated position and has roll over protection will have seat belts and their use is required. If there is no roll over protection, seat belts will not be used.

All trucks into which earth is dumped will have protection for the driver of that vehicle or the driver must exit the vehicle before loading.

Vehicle operators will not operate heavy equipment on any access roadway or grade that is not suitable for the vehicle.

Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them.

Bulldozer blades, loader buckets, dump bodies and similar equipment will be fully lowered or blocked to prevent movement during maintenance or when not in use.

All controls will be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.

When equipment is parked, the parking brake will be set. Additionally, on inclines, wheeled vehicles will be chocked. Equipment left unattended at night, adjacent to either a highway or construction area in use, will be clearly visible with **reflectors, lights, or illuminated (with reflectors or lights) barricades.**

Safety requirements for heavy construction equipment:

a. General repairs must not be made to powered equipment until workers are protected from movement of the equipment or its parts.
b. Before repairs are made workers must comply with lock-out/tag-out requirements, if applicable, of our Control of Hazardous Energy Program.
c. Wherever mobile equipment operation encroaches on a public thoroughfare, a system of traffic controls must be used.
d. Flaggers are required at all locations where barricades and warning signs cannot control the moving traffic.

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e. Job-site vehicles must be equipped with the following, if so designed:
    1. Operable service, emergency, and parking brakes.
    2. Two operable headlights and taillights for night operation.
    3. Windshield wipers and defogging equipment as required.
    4. Seat belts if the vehicle has rollover protection structures.
    5. Fenders or mud flaps.
    6. Adequate seating if the vehicles are used to transport employees.
f. Vehicles and systems must be checked for proper operation at the start of each shift.
g. Vehicles operating when rear vision is blocked must be equipped with an automatic backup alarm or its equivalent.
h. Haulage vehicles in operation must be under operator control and must be kept in gear when descending grades.
i. Engines must be stopped during refueling
j. Lights are required for night operation.
k. A safety tire rack, cage, or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings, or similar devices.
l. All equipment passenger cab window glass must be safety glass, or equivalent, and must not cause any vision impairment that may affect the safe operation of the vehicle.

Equipment Batteries

General Requirements

Batteries that are unsealed are to be located in enclosures with outside vents or in well ventilated rooms. They must be arranged so that fumes, gases, or electrolyte spray doesn't escape into surrounding areas. Ventilation will also be provided to ensure that the gases from the batteries diffuse into the air and prevent the accumulation of an explosive mixture.

Storage racks and trays must be strong enough to support that batteries and be treated to make them resistant to the electrolyte.

Floors will be of acid resistant construction unless protected from acid accumulations.

Face shields, aprons, and rubber gloves will be available and must be used by employees who handle acids or batteries. Facilities for quick drenching of the eyes and body will also be available within 25 feet of battery handling areas.

There will also be a flushing and neutralizing station and fire protection equipment available

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Charging Requirements

Battery charging stations are to be located in an area designated specifically for that purpose and not used for other purposes.

All charging equipment will be placed so that it is protected from damage by trucks and other equipment.

When batteries are being charged, the vent caps will be kept in place to avoid electrolyte spray. Vent caps must be maintained in good working condition.

Maintenance

Heavy machinery, equipment, or any of their parts that must be suspended or held in the air by using a slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between those parts.

Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, will be fully lowered or blocked when being repaired or when not in use. All controls will be left in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.

Horizontal Directional Drilling (HDD)

Only employees qualified by training or experience may perform HDD work. Further, HDD equipment may be used only by authorized employees.

Prior to use, all HDD equipment will be inspected in accordance with the Operator's Manual which must be maintained on the job site with the equipment.

PPE

The Association of Equipment Manufacturers (AEM) recommends that all employees wear properly rated electrically insulated footwear at all times.

Other appropriate PPE would include eye protection, hearing protection, highly visible clothing, and insulated rubber gloves depending on the work situation.

Underground Utilities

The greatest hazard in HDD work involves hitting an underground utility.

Call "811" which is a call before you dig information service.

The below universal color indicates what utility is buried below ground:

Red – Electric

Orange – Communications, Telephone/CATV

Blue – Potable Water

Green – Sewer/Drainage

Yellow – Gas/Petroleum Pipeline

Purple – Reclaimed Water

White – Premark site of intended excavation

Caution must be exercised because:

a. Many underground utilities are not recorded.
b. Many that are recorded are not accurate.
c. Many are at different depths below ground than indicated.

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Utilities must be physically identified to ensure they are not hit.

Once utilities are found, use signage incorporating the universal color codes.

Note: After we put in an underground item, we must report it so the next contractor does not hit it.

With the horizontal location known and the utilities exposed to determine their depth at regular intervals along the drill path, drilling may start with the drill head tracked by an experienced employee using a tracking device to direct the operator to steer the drill over, under, or around existing utilities.

Check and double check as you work. There may be loops, valves, tees and other items protruding into the drill path. Remember, **many utility items underground are not reported or improperly reported.**

The drill operator and the tracking equipment operator must be in constant contact either with two-way radios or hand signals.

If the tracker reading is not “normal”, stop work and determine the problem. When working near an existing utility, slow down and use extra care.

Heavy Equipment and Electrical Power Lines

Except where electrical distribution and transmissions lines have been de-energized and visibly grounded at the point of work or where insulating barriers (not attached to the vehicle) have been erected to prevent physical contact with the lines, the following clearance – between any part of the equipment, load line, or load **and** the power line – will be observed:

a. For lines rated 50 kV or below the minimum clearance between the lines and any part of the equipment or load will be at least 10 feet.
b. For lines rated over 50 kV the minimum clearance between the lines and any part of the equipment or load will be at least 10 feet plus 0.4 inch for each 1 kV over 50 kV (or twice the length of the line insulator, but never less than 10 feet).
c. When in transit without a load and equipment lowered, the equipment clearance will be a minimum of 4 feet for voltages less than 50 kV, 10 feet for voltages 50 kV up to and including 345 kV, and 16 feet for voltages up to and including 750 kV.

A ground guide will be designated to observe clearance of the equipment and give warning to the equipment operator in situations where it is difficult for the equipment operator to maintain the desired clearances by visual means.

An overhead wire will be considered energized unless the owner of the line, or the electrical utility authorities, indicate that it is not energized, and it has been visibly grounded.

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Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter must be de-energized, or tests must be made to determine if electrical charge is induced on the equipment. The following precautions will be taken when necessary to dissipate induced voltages:

a. The equipment must have an electrical ground directly to the upper rotating structure supporting the equipment; and
b. Ground jumper cables have to be attached to materials being handled by the equipment when electrical charge is induced while working near energized transmitters.

Note: Crews will be provided with non-conductive poles having large alligator clips or other similar protection to attach the ground cable to the load.

b. Combustible and flammable materials need to be removed from the immediate area prior to beginning operations.

Training

Operator Training, Qualification and Certification

Operators are required to be certified or licensed and receive ongoing training as necessary to operate new equipment.

Note: A state or local license is required if:

a. Working within a state or locality that has licensing requirements, and

b. A state or local license is valid for the period of time stipulated by the licensing office, but no longer than 5 years. It is portable only within the jurisdiction of the issuing agency.

Note: Written tests may be administered in a language understood by the operator candidate. When an operator's testing is based on a language other than English, it must be noted on the certificate.

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Hoists

29 CFR 1926.552 - Material hoists, personnel hoists, and elevators

A hoist is a useful mechanical device which gives one the ability to lift and move heavy objects – not people. No person is to ride on a hoist. As with all mechanical devices, improper use may lead to injury. You must know what you are doing and you must be careful.

Before use, hoists must be inspected for bent or damaged components. Particular attention should be paid to guarding. Fingers and loose clothing could be snagged in exposed mechanisms. Chains, cables, or rope slings must not be kinked, twisted, or frayed.

Loads must be properly rigged with hooks or slings, and they must never exceed the hoist's rated capacity.

Ensure that the area around the hoist is free from debris and, most importantly, people. Do not allow yourself or others to be under a hoisted load.

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Ladders

29 CFR 1926.1050 - Scope, application, and definitions applicable to this subpart

29 CFR 1926.1051 - General requirements

29 CFR 1926.1053 - Ladders

29 CFR 1926.1060 - Training requirements

All employees using ladders are required by OSHA standard to receive training and understand proper procedures for ladder use before using a ladder in a work situation.

Ladders must be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use. Defective ladders will be tagged “defective, do not use” and placed out of service.

American National Standards Institute (ANSI) and NIOSH approval labels should never be covered with paint or tape. Having ladders that are constructed to standard will prevent collapse and resultant falls.

Specific operational procedures for ladders directly relating to the elimination of fall hazards are listed below:

a. A stairway or a ladder will be provided at all personnel points of access where there is a break in elevation of 19 inches or more.
b. Ladders will never be overloaded.
c. Ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced when a ladder is in position for use.
d. Ladders will not be tied or fastened together unless they are so designed.
e. Portable ladders used for gaining access to an upper level will extend at least 3 feet above the upper landing surface or the ladder will be secured at its top.
f. Ladders must be free of oil, grease, or other slipping hazards.
g. Ladders must be used for the purpose for which they were designed.
h. Non-self-supporting ladders will be used at such an angle so that the horizontal distance from the top support to the foot of the ladder is approximately ¼ of the working length of the ladder.
i. Ladders will only be used on stable and level surfaces unless secured to prevent displacement.
j. Ladders will not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement.
k. Ladders placed in any location where they can be displaced by job site activities or traffic will be secured to prevent accidental displacement, or a barricade will be used to keep the activities or traffic away from the ladder.
l. The area around the top and bottom of the ladder will be kept clear.
m. Ladders will not be moved, shifted, or extended while occupied.
n. The top step of a stepladder will not be used as a step.
o. Portable ladders with structural defects will be immediately marked in a manner that readily identifies them as defective and removed from service until repaired.
p. When ascending or descending a ladder, one must face the ladder.
q. Employees must use at least one hand to grasp the ladder when progressing up and/or down the ladder.
r. Employees are not to carry any object or load that could cause loss of balance and a resultant fall.

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Fixed ladders where the length of climb is less than 24 feet, but the top of the ladder is greater than 24 feet above the lower level must have cages, wells, ladder safety devices, or self-retracting lifelines.

Fixed ladders where the length of climb equals or exceeds 24 feet will have at least one of the following:

a. Ladder safety devices.
b. Self-retracting lifelines and rest platforms not exceeding 150 feet.
c. A cage or well, and multiple ladder sections not exceeding 50 feet in length. At the maximum interval of 50 feet, ladder sections will be offset on landing platforms.

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Lighting

29 CFR 1926.56 - Illumination

A competent person will ensure that all work areas have adequate lighting. Adequate lighting serves a two-fold purpose – allowing tasks to be more readily performed as well as providing the additional safety factor of being seen by persons not involved with the work – especially vehicular traffic.

If generators are used for auxiliary lighting, they will be operated and maintained by authorized persons who are competent by training or experience.

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Line Breaking

"Line breaking" means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Prior to any line breaking, a Line Breaking Permit must be completed and submitted for approval. The approved Line Breaking Permit must be posted at the work location and returned to the Safety Office upon completion of the job.

Prior to line breaking, the flow of gas, steam, vapor, and liquid must be halted. It is absolutely vital to know the exact contents of the line and the pressures involved so that appropriate PPE and fire protection is immediately available. Additionally, the ramifications of halting the flow within the pipe must be known. That is why, **prior** to any blocking of flow through pipes, permission will be obtained from the facility operator. Failure to follow this specific rule could result in a major catastrophe.

Note: All open-ended pipes left on location must be immediately be blanked or capped.

Before actual tie-in is attempted, the original pipe that has been taken out of service (by positive means such as valve, block, or tag) will be purged of contaminants, and gas tested, if appropriate.

At the completion of the tie-in, the facility operator will be notified **before** flow is restored to the pipe.

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LP - Gas Storage

29 CFR 1926.153 - Liquefied petroleum gas (LP-Gas)

Liquefied petroleum gas (LP-Gas) is sometimes used on job sites to provide fuel for temporary heating devices.

LP-Gas systems must have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. All cylinders must be DOT approved.

Rules for inside storage (under construction standards) are simple -- **it is not allowed!**

Note: Under industry standards, up to 300 pounds of LP-Gas may be stored, with adherence to specific safety procedures, is allowed.

Rules for outside storage requires that containers be in a suitable ventilated enclosure or otherwise protected against tampering. At least one approved portable fire extinguisher having a rating of not less than 20-B:C must be readily available.

The distances from buildings or groups of buildings that containers must be stored are as follows:

Quantity of LP-Gas Stored	Distance in Feet
500 lbs or less	0
501 to 6,000 lbs	10
6,001 to 10,000 lbs	20
over 10,000 lbs	25
Storage must not be near building openings or vehicular traffic.	

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LP - Gas Temporary Heating

29 CFR 1926.153 - Liquefied petroleum gas (LP-Gas)

When LP-Gas is used for temporary heating on units that provide over 7,500 BTU per hour or use containers greater than 2.5 pounds maximum water capacity [nominal 1-pound LP-Gas capacity], the following will apply:

a. Container valves, connectors, regulators, manifolds, piping and tubing must not be used as structural supports for the heaters.
b. The LP-Gas containers and all associated equipment including hoses must be located so as to minimize exposure to high temperatures or physical damage.
c. The maximum water capacity of individual containers must be 245 pounds [nominal 100-pound LP-Gas capacity].

Heaters that are not integral heater-container units, which are connected by hose to the LP-Gas, must be at least 6’ from the container. Blower and radiation type heaters must not be directed toward the container or any other unit within 20 feet. Heaters specifically designed for attachment to the container are permitted as long as the heat is not directed to the LP-Gas container.

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Machine Guarding

29 CFR 1926.307 - Mechanical power-transmission apparatus

29 CFR 1910.212: General requirements for all machines.

29 CFR 1910.217: Mechanical power presses.

29 CFR 1910.217: App A Mandatory requirement for certification/validation of safety systems for presence sensing device initiation of mechanical power presses

29 CFR 1910.217: App B Non-mandatory guidelines for certification/validation of safety systems for presence sensing device initiation of mechanical power presses

29 CFR 1910.217: App C Mandatory requirements for OSHA recognition of third-party validation organizations for the PSDI standard

29 CFR 1910.217: App D Non-mandatory supplementary information

29 CFR 1910.219: Mechanical power-transmission apparatus

Most injuries that occur when operating a machine happen at the point of operation – the point on a machine where the actual work (cutting, bending, and spinning) occurs. This is also the point where guards can protect fingers and hands exposed to that danger. Machine guarding also protects employees from other dangers such as flying pieces of metal, sparks, gears, belts, and rotating parts.

The most common types of machines on job sites are power tools which often have guards to prevent injury.

Accident prevention in this area is a function of machine design – engineering controls – and operator training. Types of machine guarding are almost as numerous as types of machines – the most common being a physical barrier to prevent accidental insertion of body parts. Guards are vital for safety reasons and machine guards designed into a machine should never be altered or removed. The speed and tremendous forces involved in modern machines are such that severe injury or even death could occur without warning and without even slowing the machine down.

Training and proper work methods go a long way toward reducing machine accidents. Like all safeguards, there is generally a way to bypass safety features that are engineered into machines. This is sometimes done to increase speed or just to make one's job easier. This could result in a tragic, avoidable accident. The few seconds saved could cause a lifetime of grief. **Do not bypass safety systems.**

Operate all machines according to the instructor's manual and follow all safety procedures.

Horizontal belts, pulleys, and gears which are less than seven feet from the floor will be guarded. Operate all machines according to the instructor's manual and follow all safety procedures.

Because of the seriousness of machine guarding, specific guidelines for point of operation guarding follow:

Reference our Lockout-Tagout - Control of Hazardous Energy Program and Personal Protective Equipment Program.

OSHA’s machinery and machine guarding standards require that one or more guarding methods be utilized to protect employees (operating, minor servicing and others nearby) from exposure to hazardous machine energy.

Methods of Machine Safeguarding

There are many ways to safeguard machines. The type of operation, the size or shape of stock, the method of handling, the physical layout of the work area, the type of material, and production requirements or limitations will help to determine the appropriate safeguarding method for the individual machine.

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As a general rule, power transmission apparatus is best protected by fixed guards that enclose the danger areas. For hazards at the point of operation (where moving parts actually perform work on stock) several kinds of safeguarding may be possible. One must always choose the most effective and practical means available.

Safeguard Classifications:

Guards

a. Fixed

A fixed guard is a permanent part of the machine. It is not dependent upon moving parts to perform its intended function. It may be constructed of sheet metal, screen, wire cloth, bars, plastic, or any other material that is substantial enough to withstand whatever impact it may receive and to endure prolonged use. This guard is usually preferable to all other types because of its relative simplicity and permanence.

b. Interlocked

When this type of guard is opened or removed, the tripping mechanism and/or power automatically shuts off or disengages, and the machine cannot cycle or be started until the guard is back in place. An interlocked guard may use electrical, mechanical, hydraulic, or pneumatic power or any combination of these. Interlocks should not prevent "inching" by remote control if required. Replacing the guard should not automatically restart the machine. To be effective, all movable guards should be interlocked to prevent occupational hazards.

c. Adjustable

Adjustable guards are useful because they allow flexibility in accommodating various sizes of stock.

d. Self-adjusting

The openings of these barriers are determined by the movement of the stock. As the operator moves the stock into the danger area, the guard is pushed away, providing an opening which is only large enough to admit the stock. After the stock is removed, the guard returns to the rest position. This guard protects the operator by placing a barrier between the danger area and the operator. The guards may be constructed of plastic, metal, or other substantial material. Self-adjusting guards offer different degrees of protection.

Devices

a. Presence Sensing

1. Photoelectrical (optical)

The photoelectric (optical) presence-sensing device uses a system of light sources and controls which can interrupt the machine's operating cycle. If the light field is broken, the machine stops and will not cycle. This device must be used only on machines which can be stopped before the worker can reach the danger area. The design and placement of the guard depends upon the time it takes to stop the mechanism and the speed at which the employee's hand can reach across the distance from the guard to the danger zone.

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2. Radiofrequency (capacitance)

   The radiofrequency (capacitance) presence-sending device uses a radio beam that is part of the machine control circuit. When the capacitance field is broken, the machine will stop or will not activate. Like the photoelectric device, this device will only be used on machines which can be stopped before the worker can reach the danger area. This requires the machine to have a friction clutch or other reliable means for stopping.

3. Electromechanical

   The electromechanical sensing device has a probe or contact bar which descends to a predetermined distance when the operator initiates the machine cycle. If there is an obstruction preventing it from descending its full predetermined distance, the control circuit does not actuate the machine cycle.

b. Pullback

Pullback devices utilize a series of cables attached to the operator's hands, wrists, and/or arms. This type of device is primarily used on machines with stroking action. When the slide/ram is up between cycles, the operator is allowed access to the point of operation. When the slide/ram begins to cycle by starting its descent, a mechanical linkage automatically assures withdrawal of the hands from the point of operation.

c. Restraint

A restraint (holdout) device utilizes cables or straps that are attached to the operator's hands at a fixed point. The cables or straps must be adjusted to let the operator's hands travel within a predetermined safe area. There is no extending or retracting action involved. Consequently, hand-feeding tools are often necessary if the operation involves placing material into the danger area.

d. Safety Controls

Safety trip controls provide a quick means for deactivating the machine in an emergency situation.

1. Safety trip control

   I. Pressure-sensitive body bar

      A pressure-sensitive body bar, when depressed, will deactivate the machine. If the operator or anyone trips, loses balance, or is drawn toward the machine, applying pressure to the bar will stop the operation. Therefore, the positioning of the bar is critical. It must stop the machine before a part of the employee's body reaches the danger area.

   II. Safety trip rod

      When pressed by hand, the safety trip rod deactivates the machine. Because the trip rod has to be actuated by the operator during an emergency situation, its proper position is also critical.

   III. Safety tripwire cable

      Safety tripwire cables are located around the perimeter of or near the danger area. The operator must be able to reach the cable with either hand to stop the machine. All of these tripwire rods or other safety devices must be manually reset to restart the machine. Simply releasing the tripwire to restart the machine will not ensure that the employee is out of danger when the machine restarts.

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2. Two-hand control

   The two-hand control requires constant, concurrent pressure by the operator to activate the machine. This kind of control requires a part-revolution clutch, brake, and a brake monitor if used on a power press. With this type of device, the operator's hands are required to be at a safe location (on control buttons) and at a safe distance from the danger area while the machine completes its closing cycle.

3. Two-hand trip

   A two-hand trip requires concurrent application of both the operator's control buttons to activate the machine cycle, after which the hands are free. This device is usually used with machines equipped with full-revolution clutches. The trips must be placed far enough from the point of operation to make it impossible for the operator to move his or her hands from the trip buttons or handles into the point of operation before the first half of the cycle is completed. The distance from the trip button depends upon the speed of the cycle and the band speed constant. Thus, the operator's hands are kept far enough away to prevent them from being placed in the danger area prior to the slide/ram or blade reaching the full "down" position. To be effective, both two-hand controls and trips must be located so that the operator cannot use two hands or one hand and another part of his/her body to trip the machine.

Gates

A gate is a movable barrier that protects the operator at the point of operation before the machine cycle can be started. In many instances' gates are designed to be operated with each machine cycle.

a. Interlocked

   To be effective, the gate must be interlocked so that the machine will not begin a cycle unless the gate guard is in place. It must be in the closed position before the machine can function. If the gate is not permitted to descend to the fully closed position, the press will not function. Another potential application of this type of guard is where the gate is a component of a perimeter safeguarding system. Here the gate may provide protection not only to the operator but to pedestrian traffic as well.

Location/Distance

A thorough hazard analysis of each machine and particular situation is absolutely essential before attempting this safeguarding technique. To consider a part of a machine to be safeguarded by location, the dangerous moving part of a machine must be so positioned that those areas are not accessible or do not present a hazard to a worker during the normal operation of the machine. This may be accomplished by locating a machine so that the hazardous parts of the machine are located away from operator work stations or other areas where employees walk or work and/or positioning a machine with its power transmission apparatus against a wall and leaving all routine operations conducted on the other side of the machine. Additionally, enclosure walls or fences can restrict access to machines.

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Another possible solution is to have dangerous parts located high enough to be out of the normal reach of any worker. The feeding process can be safeguarded by location if a safe distance can be maintained to protect the worker's hands. The dimensions of the stock being worked on may provide adequate safety. For instance, if the stock is several feet long and only one end of the stock is being worked on, the operator may be able to hold the opposite end while the work is being performed. An example would be a single end punching machine. However, depending upon the machine, protection might still be required for other personnel in the area. The positioning of the operator's control station provides another potential approach to safeguarding by location. Operator controls may be located at a safe distance from the machine if there is no reason for the operator to tend it.

Basic Policy

Power machinery must not be “energized” [connected to an energy source or containing residual or stored energy] unless it is under the control of a trained operator and the point of operation is guarded by one or more physical barriers or a physical device with the following exception:

> Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard [Control of Hazardous Energy] if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

Or as provided under the servicing and maintenance testing and positioning requirements of paragraph 29 CFR 1910.147(f):

> Testing or positioning of machines, equipment or components thereof. In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions will be followed:
>
> (i) Clear the machine or equipment of tools and materials.
>
> (ii) Remove employees from the machine or equipment area.
>
> (iii) Remove the lockout or tagout devices.
>
> (iv) Energize and proceed with testing or positioning.
>
> (v) De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

Do not confuse the requirements of our Lockout-Tagout - Control of Hazardous Energy Program with the requirements of Machine Guarding. Even though minor tool changes, adjustments, and other minor servicing activities which take place during normal production operations are not covered by the Control of Hazardous Energy standard because they are routine, repetitive, and integral to the use of the equipment for production, machine guarding is still required to protect the employee who is performing the servicing operations mentioned above.

Failure to follow point of operation safety procedures and guidelines can generally result in loss of fingers. However, loss of any body part or even a fatal accident is a possibility.

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Machinery

Spinning, pounding, and moving – gears, pulleys, levers – electricity, fuel, and hydraulics – action, reaction, force: danger! Machinery takes energy and performs a task or a multitude of tasks. Machinery, from a safety standpoint, is a collection of individual, simple machines (pulleys, gears, etc.) combined to work in harmony to accomplish a specific job.

The danger is obvious: the power, speed, movement, and momentum of machinery is not going to be altered by something as insignificant as an employee's finger, hand, or even body.

How does one deal with the dangers of machinery?

a. **Never** operate any machinery until you have received proper training and you thoroughly understand safety procedures as well as procedures to follow for adjustments, power interruption, jamming, lubrication, and inspection.
b. Ensure the guarding systems are in place, functioning properly, and have not been altered or removed.
c. If a hazard assessment of the machinery operation dictates specific personal protective equipment (PPE), wear it!
d. From purely a safety standpoint, think of any power operated item with moving parts as machinery. This would include items as diverse as a small electric drill to an 80,000-pound tractor-trailer.

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Material Storage

29 CFR 1926.250 - General requirements for storage

General Requirement for Storage

All materials stored in tiers will be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.

Maximum safe load limits of floors within buildings and structures, in pounds per square foot, will be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads will not be exceeded.

Note: Posting is not required for storage areas in all single-family residential structures and wood-framed multi-family residential structures

Aisles and passageways will be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas will be kept in good repair.

When a difference in road or working levels exist, means such as ramps, blocking, or grading will be used to ensure the safe movement of vehicles between the two levels.

Material Storage

Material stored inside buildings under construction will not be placed within 6 feet of any hoist way or inside floor openings, nor within 10 feet of an exterior wall which does not extend above the top of the material stored.

Each employee required to work on stored material in silos, hoppers, tanks, and similar storage areas will be equipped with personal fall arrest equipment meeting the requirements of Fall Protection of this Safety Manual.

Noncompatible materials will be segregated in storage.

a. Bagged materials will be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.

Materials will not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

Brick stacks will not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it will be tapered back 2 inches in every foot of height above the 4-foot level.

When masonry blocks are stacked higher than 6 feet, the stack will be tapered back one-half block per tier above the 6-foot level.

Used lumber will have all nails withdrawn before stacking.

Lumber will be stacked on level and solidly supported sills and will be so stacked as to be stable and self-supporting.

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Mold & Mildew

Molds and mildew are fungi that can be found inside any building in which our employees are working. Within the United States, there are about 1,000 species of mold.

Problems may arise when mold starts eating away at materials, affecting the look, smell, and possibly, with the respect to wood-framed buildings, affecting the structural integrity of the buildings.

Molds can grow on virtually any substance, as long as moisture or water, oxygen, and an organic source, **such as wood**, are present. Molds reproduce by creating tiny spores (viable seeds) that usually cannot be seen without magnification. In fact, mold spores continually floating through both the indoor and outdoor air and these spores, alone, **do not create a problem**.

The problem occurs when mold spores land on a damp spot and begin growing. They digest whatever they land on in order to survive. Molds can grow on wood, paper, carpet, foods, insulation, and even dust and dirt that gathers in moist areas a building.

From a contractor standpoint, over time, molds can gradually damage building materials and furnishings. If left unchecked, mold can eventually cause structural damage to a wood framed building, weakening floors and walls as it feeds on moist wooden structural members.

Most molds do not present a true health hazard in the general population. Molds can, however, cause adverse effects by producing allergens and the allergic reactions to mold can be either immediate or delayed. Allergic responses would include hay fever-type symptoms such as runny nose and red eyes.

Our work, as a contractor, will not introduce molds into the workplace.

Should mold be discovered on any of our job sites, we will notify the owner and advise the owner to seek a professional mold remediation contractor.

Should mold exist on a job site where our employees are working, the following precautionary steps will be taken:

a. Dust mask may be used for personal employee comfort.
b. Items damaged by mold may be discarded a general waste with no special precautions needed.

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NFPA 70E

Standard for Electrical Safety in the Workplace

OSHA has adopted by reference **NFPA 70E-2000**, *Standard for Electrical Safety Requirements for Employee Workplaces.*

A national consensus standard, such as NFPA 70E-2015, however, can sometimes be relevant to a general duty clause citation in the sense that the consensus standard may be used as evidence of hazard recognition and the availability of feasible means of abatement. The general duty clause, Section 5(a)(1) of the OSH Act, is violated if an employer has failed to furnish a job site that is free from recognized hazards causing or likely to cause death or serious physical harm. The general duty clause is used where there is no standard that applies to the particular hazards involved.

All electrical work will be done in compliance with the National Electric Code (NEC), OSHA standards, and NFPA 70E. Both OSHA standards and NFPA 70E deal with worker safety, while the NEC deals with the design, installation, and inspection of electrical installations.

A copy of **NFPA 70E** will be readily available for reference, training, and employee use.

Training:

All employees who face electrical hazards that are not reduced to a safe level by the applicable electrical installation requirements will be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with the job assignments. Employees will be trained to identify and understand the relationship between electrical hazards and possible injury.

Training will be in a classroom and/or on-the-job and the degree of training will be determined by the risk to the employee.

Employees will receive training in emergency procedures including methods of release from contact with exposed energized electrical conductors or circuit parts, methods of first aid, and CPR if the duties warrant such training. Matt Landers will certify that employees have been trained in approved methods of resuscitation annually.

Training for Qualified Persons:

Note: A qualified person has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

Qualified persons must be trained and knowledgeable of the construction and operation of equipment or a specific work method and to recognize and avoid the electrical hazards with respect to the equipment or work methods.

a. Qualified persons will be familiar with the proper use of special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

   Note: A person can be qualified with respect to certain equipment and methods but still be unqualified for others.

b. Qualified persons will be permitted to work with the Limited Approach Boundary of exposed energized electrical conductors and circuit parts operating at 50 volts or more and will be trained in the following:

   1. The skills and techniques necessary to distinguish exposed energized electrical conductors and circuits parts from other parts of electrical equipment

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2. The skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
3. The approach distances specified in Table 130.2(c) and the corresponding voltages to which the qualified person will be exposed.
4. The decision-making process necessary to determine the degree and extent of the hazard and the PPE and job planning necessary to perform the task safely.

c. If undergoing OJT and, in the course of the OJT has demonstrated an ability to perform duties safely under the direct supervision of a qualified person, this person will be considered qualified for the performance of these duties.
d. Tasks performed less often that once per year will require retraining before performance of the work practices involved.
e. Qualified persons will be trained to select an appropriate voltage detector and demonstrate how to use a device to verify the absence of voltage, including interpreting indications provided by the device. They will be trained to understand all limitations of each specific voltage detector that may be used.

Training for Unqualified Persons:

Unqualified persons will be trained in and be familiar with any of the electrical safety related practices that are necessary for their safety.

Note: Unqualified persons will not be permitted to enter spaces that are required to be accessible to qualified employees only unless the electric conductors and equipment involved are in an electrically safe work condition.

Retraining:

Retraining will be given when.

a. Supervisors or annual inspections indicate that the employee is not complying with the safety-related work practices.
b. New technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different than those the employee would normally use.
c. If the employee must employ safety-related work practices that are not normally used during regular job duties.

Training Documentation:

The company will document that each employee has received the training above **after** the employee demonstrates proficiency in the work practices involved and will be maintained for the duration of the employee's employment. Training documentation will contain the employee's name and dates of training.

Host Employer Responsibilities:

The host employer will inform contract employers of:

a. Known electrical hazards that are related to the contract employer's work that might not be recognized by the contract employer or its employees.
b. Information about the employer's installation that the contract employer needs to make assessments.

The host employer will report observed contract employer related violations (dealing with electrical work) to the contract employer.

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Contract Employer Responsibilities:

The contract employer will ensure that each of its employees is instructed in the hazards communicated to the contractor employer by the host employer. This instruction is in addition to the basic instruction required by NFPA 70E.

The contract employer will ensure that each of its employees follow the work practices required by NFPA 70E and safety-related work rules required by the host employer.

The contractor employer will advise the host employer of:

a. Any unique hazards presented by the contract employer's work.
b. Any unanticipated hazards found during the contract employer's work that the host employer did not mention.
c. The measures the contractor took to correct any violations reported by the host employer and prevent such violations from recurring in the future.

Electrical Safety Program:

The employer will implement and document an overall safety program that directs activity appropriate for the voltage, energy level, and circuit conditions.

Safety related work practices are only one component of an overall an electrical safety program.

Electrical Safety Program Procedures:

The program will address safety related work practices for working within the Limited Approach Boundary. Program elements found in Annex E to NFPA 70E would be included such as evaluations, anticipating unexpected events, electrical flash arc hazard analysis, and the fact that all electrical parts are considered live until proven otherwise.

Risk/Hazard Evaluation Procedures:

Risk/hazard evaluation procedures are to be used before work is started within the Limited Approach Boundary of energized electrical conductors and circuit parts operating at 50 volts or more or where an electrical hazard exists. An example of Hazard/Risk Evaluation Procedures as well an example of a Hazard Risk Analysis Evaluation Flow Chart is found in Annex F to NFPA 70E. It would contain event severity, frequency, probability and avoidance to determine the level of safe practices to be employed.

Pre-Job Briefings for Routine Work:

Prior to performing routine work (routine work is not complicated or particularly hazardous and the employee should be able to recognize and avoid hazards presented), a job briefing will be held before each job and include all employees involved. Topics would include hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

Test Instruments and Equipment:

All test instruments, equipment, and their accessories will be rated for the circuits and equipment to which they will be connected. Further they will meet the requirements of **ANSI/ISA-66010-1**, Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 volts and below.

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Operations Verification:

When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument will be verified before and after an absence of voltage test is performed.

Insulating PPE Maintenance and Use:

Electrical protective equipment will be maintained in a safe, reliable condition. Insulating equipment will be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given for an air test along with the inspection.

Maximum test intervals for rubber insulating equipment will be in accordance with NFPA 70E Table 130(c)(6)(c). Time frames for testing would include: 1) Blankets-before first issue/every 12 months, thereafter, 2) Gloves-before first issue and every 6 months, and, 3) Sleeves-before first issue and every 12 months. Covers and line hose will be tested if insulating value is suspect.

Energized Electrical Work Permit:

Reference Annex J to NFPA 70E. Energized Electrical Work Permits **are not** part of NFPA 70E. Within Annex J, however, are both an example of an Energized Electrical Work Permit and a Flow Chart to illustrate items to consider when determining the need for the permit.

In every case, if the voltage level is **≥** 50 volts **AND** there are exposed live parts, an Energized Electrical Work Permit is required.

In Part I [to be completed by the Requester] of the Energized Electrical Work Permit will include:

a. Job/Work Order Number.
b. Description of the work to be done.
c. Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage.
d. Requester Name, Title, and Date.

In Part II (to be completed by the Electrically Qualified persons doing the work) of the Energized Electrical Work Permit will include:

a. Detailed job description procedure to be used in performing the above detailed work.
b. Description of the Safe Work Practices to be employed.
c. Results of the Shock Hazard Analysis.
d. Determination of the Shock Protection Boundaries.
e. Results of the Arc Flash Hazard Analysis.
f. Determination of the Arc Flash Protection Boundary.
g. Necessary personal protective equipment to safely perform the assigned task.
h. Means employed to restrict the access of unqualified persons from the work area.
i. Evidence of completion of a Job Briefing including discussion of any job-related hazards.
j. A signed and dated agreement by each Electrical Qualified Person that the above work can be done safely.

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In Part III of the Energized Electrical Work Permit will include:

Signed and dated approval(s) by persons such as:

a. Manufacturer Manager
b. Safety Manager
c. General Manager
d. Maintenance/Engineering Manager
e. Electrically Knowledgeable Person

Illumination of Work Areas:

Employees will not enter spaces containing electrical hazards 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 will not perform any task with the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

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Pile Driving

General Requirements:

Boilers and piping systems which are a part of, or used with, pile driving equipment will meet the applicable requirements of the American Society of Mechanical Engineers, Power Boilers (section I). Additionally, all pressure vessels which are a part of, or used with, pile driving equipment will meet the applicable requirements of the American Society of Mechanical Engineers, Pressure Vessels (section VIII).

Overhead protection, which will not obscure the vision of the operator, will be provided. This overhead protection will be the equivalent of 2-inch planking or other solid material of equivalent strength.

Stop blocks will be provided for the leads to prevent the hammer from being raised against the head block. Also, a blocking device, capable of safely supporting the weight of the hammer, will be provided for placement in the leads under the hammer at all times while employees are working under the hammer. Guards will also be provided across the top of the head block to prevent the cable from jumping out of the sheaves.

When the leads must be inclined in the driving of batter piles, provisions will be made to stabilize the leads. Fixed leads will be provided with a ladder, and adequate attachment points, so that the loft worker may engage his safety belt lanyard to the leads. If the leads are provided with loft platforms, such platform will be protected by standard guardrails.

Steam hose leading to a steam hammer or jet pipe will be securely attached to the hammer with an adequate length of chain or cable to prevent whipping in the event the joint at the hammer is broken. Air hammer hoses will also be provided with the same protection as required for steam lines. This safety chain or cable must be at least 1/4-inch in diameter and will also be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.

Steam line controls will have two shutoff valves. One must be a quick-acting lever type within easy reach of the hammer operator.

Guys, outriggers, thrust outs, or counterbalances must be provided as needed to maintain stability of pile driver rigs.

Pile Driving from Barges and Floats:

Barges or floats supporting pile driving operations will meet the applicable requirements of **CFR 29 1926.605 - Marine Operations and Equipment.**

Pile Driving Equipment:

Engineers and winchmen will accept signals only from the designated signalmen.

All employees must be clear when piling is being hoisted into the leads.

When piles are being driven in an excavated pit, the walls of the pit must be sloped to the angle of repose, or sheet-piled and braced.

When steel tube piles are being "blown out", employees will be kept well beyond the range of falling materials.

When it is necessary to cut off the tops of driven piles, pile driving operations need to be suspended. The exception is when the cutting operations are located at least twice the length of the longest pile from the driver.

When driving jacked piles, all access pits will be provided ladders and bulkheaded curbs to prevent material from falling into the pit.

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Process Safety Management

29 CFR 1910.119 - Process safety management of highly hazardous chemicals

29 CFR 1910.119 App A - List of highly hazardous chemicals, toxics and reactives

29 CFR 1910.119 App B - Block flow diagram and simplified process flow diagram

29 CFR 1910.119 App C - Compliance guidelines and recommendations for process safety management

29 CFR 1910.119 App D - Sources of further information

The importance of safety can never be overemphasized. In normal work situations, failure to follow a safety procedure may result in a minor abrasion or, at worst, a fatality. However, when working in a facility that has process safety management of highly hazardous chemicals, failure to follow a safety procedure may result in catastrophic release of toxic, reactive, flammable, or explosive chemicals resulting in devastating consequences to an entire workplace or even an entire community.

How serious can failure to establish and maintain a process safety management of highly hazardous chemicals be? On December 3, 1984, a poisonous gas leak at a Union Carbide factory in Bhopal, India, killed 16,000 persons and injured an additional 500,000.

The purpose of process safety management is to follow established requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.

The standard that addresses process safety management, 29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals*, can be accessed above and all employees who will be working in a facility which falls under its provisions are to read, at a minimum, paragraph (h) and Appendix C of this standard.

Our Responsibilities as a Contract Employer:

As a contract employer, we will:

a. Assure that each of our employees is trained in the work practices necessary to safely perform his/her job.
b. Assure that each of our employees is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.
c. Document that each of our employees has received and understood the training required by this 29 CFR 1910.119(h).
    1. A training record will be prepared which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.
    2. Training will include all items pertinent to the operating procedures prepared by the employer.

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d. Per 29 CFR 1910(h)(3)(iv), assure, through evaluation of the safety performance of each of our employees, that the safety rules developed by the employer for whom we are working (contractor) are met. This would include those required by 29 CFR 1910.119(f)(4) which include safety work practices for the control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel. These safe work practices apply to employees and contractor employees.
e. Advise the employer of any unique hazards presented by our work, or of any hazards found by our work.

While hazard communication is important on any job site, it is especially important when working in a process safety management situation. Safety Data Sheets (SDS), will be on hand for all chemical products we use and we will, as part of sharing of information, request to see the facility's SDS for chemicals they are using in the area of the facility in which we are working. These SDS will not only be present, they must be read prior to work activities.

Matt Landers, or other competent person, will inform our employees of the known potential fire, explosion or toxic release hazards related to their job and the process and the applicable provisions of the emergency action plan.

Per paragraph (h)(2), 29 CFR 1910.119, the facility for which we are working will provide our employees the known potential fire, explosion, or toxic release hazards related to our work and the process and explain the applicable provisions of their emergency action plan such as escape routes, procedures to account for employees, means of reporting emergencies, and alarm system.

All employees are to respect the confidentiality of trade secret information when the process safety information is released to them.

While our Hot Work Permit has the provisions of 29 CFR 1910.252(a) printed with it, we will not do any hot work without a Hot Work Permit issued by the facility for which we are working. The provisions of 29 CFR 1910.252(a) must be complied with during these operations. Employees performing hot work operations will be provided a copy of **29 CFR 1910.252(a).**

While the provisions of our specific OSHA compliance programs will be essentially the same as those of the facility for which we are working (i.e., Control of Hazardous Energy, Permit-Required Confined Space, opening process equipment or piping and controls over entrance to facility, etc.), we will follow the provisions of the facility programs when they are applicable to our work.

The supervisor or competent person will advise the facility of any unique hazards presented by our work or any hazards found by our employees.

The supervisor or competent person will immediately report all accidents, injuries, and near misses and an incident investigation must be initiated within 48 hours. Resolutions and corrective actions must be documented and maintained for 5 years.

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All the safety provisions, policies, and procedures contained in our safety program are applicable to work with a facility utilizing process safety management of highly hazardous chemicals. Additionally, our employees will abide by the safe work practices developed by the facility for which we are working.

Matt Landers will assure that each employee is properly trained in the work practices necessary to perform his/her job.

Matt Landers will document that our employees understand the training required by paragraph (h), 29 CFR 1910.119, using our Process Safety Management Training Record.

Management of Change:

Management of change applies to the following:

a. A process which involves a chemical at or above the specified threshold quantities listed in Appendix A to 29 CFR 1910.119.
b. A process which involves a flammable liquid or gas on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more.

Note: Flammable gas means:

a. 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

b. 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.

Flammable liquid means:

a. Any liquid having a flashpoint below 100 deg. F (37.8 deg. C), except any mixture having components with flashpoints of 100 deg. F (37.8 deg. C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

c. Flammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.
d. Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels **are part of a process** containing another highly hazardous chemical covered by 29 CFR 1910.119.

Management of change does not apply to:

a. Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by 29 CFR 1910.119.
b. Oil or gas well drilling or servicing operations; or,
c. Normally unoccupied remote facilities.

The **employer for whom we are working** will establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures; and, changes to their facilities that affect a covered process.

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The procedures developed by the employer for whom we are working will assure that the following considerations are addressed prior to any change:

a. The technical basis for the proposed change.
b. Impact of change on safety and health.
c. Modifications to operating procedures.
d. Necessary time period for the change.
e. Authorization requirements for the proposed change.

If our employees are involved in operating a process and maintenance and our employees' job tasks will be affected by the change in the process, the company for whom we are working, must inform our employees of, and train them in, the change prior to start-up of the process or affected part of the process.

If the above changes result in a change in the process safety information required to be provided to our employees, the updated process safety information will be provided to our employees by the company for whom we are working.

If the above changes result in a change in the operating procedures or practices, such procedures or practices will be updated accordingly.

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Radio Frequency (RF) Safety / Electromagnetic Energy (EME)
(Non-Ionizing Radiation Hazards)

Radio Frequency Program Administrator:

Our radio frequency program administrator is Matt Landers and they have the authority and resources to implement and enforce all aspects of our radio frequency program.

All climbers, as well as any other employees with potential exposure to non-ionizing radiation hazards, have been trained for working in radio frequency (RF)/electromagnetic energy(EME) environments, including how to control the hazard. They must use RF monitors while at risk.

Matt Landers will use the following documents and records to maintain our radio frequency program and ensure its usefulness:

a. Non-ionizing radiation source inventories
b. Employee's exposure assessments
c. In the field measurements
d. Awareness training
e. Exposure incident reports

At the completion of any job task which involves non-ionizing radiation hazards, Matt Landers will review all aspects of our performance so that deficiencies can be identified and resolved.

Additionally, a competent person who can effectively assess RF/EME exposures will identify and periodically monitor RF/EME hazards faced by our employees.

Our procedures will also be reviewed at least annually to ensure the latest current standards addressing non-ionizing radiation hazards are included in our program.

Matt Landers will ensure that employees with potential exposure to non-ionizing radiation hazards are committed to safe work practices, understand potential acute and chronic health hazards, and methods to control these hazards.

Non-ionizing radiation is electromagnetic radiation that does not have enough energy to completely remove an electron from an atom when passing through matter.

Ionizing radiation is high-energy radiation capable of producing ionization in substances through which it passes, i.e., electromagnetic waves that are energetic enough to detach electrons from atoms or molecules.

Radiofrequency (RF) and microwave (MW) radiation are non-ionizing electromagnetic radiation.

Electromagnetic radiation is restricted to that portion of the spectrum commonly defined as the radio frequency region, which for our purposes also includes the microwave frequency region.

RF in the frequency ranges 3 kilohertz (kHz) - 300 Megahertz (MHz) and MW is in the frequency ranges 300 MHz - 300 gigahertz (GHz).

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The hazards associated with RF and MW are limited to heating of tissue and/or cells in the body, damage to the eyes (cataracts), reduced sperm count, and shocks or burns. The preceding hazards will only be possible at ten times the exposure limit.

Note: In a healthy human body, the thermo-regulatory system will cope with the absorbed heat until it reaches the point at which it cannot maintain a stable body core temperature. Beyond this point the body may experience hyperthermia (heat exhaustion) and/or irreversible damage to human tissue if the cell temperature reached about 43 degrees Celsius. There is higher risk of heart damage for organs that have poor temperature control such as the lens of the eye and the testes.

The preceding hazards will only be possible at ten times the exposure limit.

Per 29 CFR 1910.97, *Nonionizing Radiation*, employees will not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

Note: Power density is defined as power per unit area. Power density can be expressed in terms of milliwatts per square centimeter (mW/cm2) or microwatts per square centimeter (µW/cm2). Power density is most accurately used when the point of measurement is far enough away from the RF emitter to be located in what is commonly referred to as the "far-field" zone of the radiation source, e.g., more than several wavelengths distance from a typical RF source.

Matt Landers will conduct a Workplace Hazard Assessment of each location to identify any potential non-ionizing radiation sources and to understand hazards they may pose to our employees. When the assessment is complete, a non-ionizing radiation source inventory will be compiled. Information to be included in the source inventory may include, but not limited to, the following:

a. Device type, use or function, frequency, power, etc.
b. A description of the potential exposure hazard
c. A description of the process used to detect potential exposure.

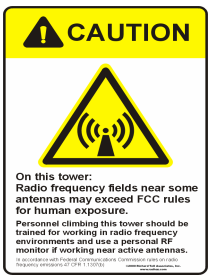
Each source inventory will be maintained on site and is available for review upon request.

<u>Workplace and Engineering Controls</u>

To prevent unnecessary RF and MW exposures at any level, access to the work site will be controlled by signage and fences, and access will be allowed only to persons trained in RF and MW safety procedures.

Signage for possible exposure above 10 times the PEL is as follows:

Signage for possible exposure from the action level to time the PEL is as follows:



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Control of RF/EME Hazard Areas

LNE Electric will encourage employees to provide their insight when developing the structure and operation of our safety program and when making decisions that affect their safety and health. Employees are required to understand and make full use of our safety program to demonstrate their commitment to the safe work practices established.

Engineering controls will be utilized before the required use of PPE.

Engineering controls would include, if possible, turning off and locking out transmitters both on the tower on which we are working, as well as nearby towers which would expose our employees to unacceptable radiation exposures.

If the transmitters cannot be completely shut down (locked-out), an attempt will be made to lower their output to put create a safe working space.

If the above cannot be accomplished, employees will be provided, and required to use, specialized protective clothing and eye wear specifically designed to prevent RF radiation from reaching the skin and eyes of employees.

Following is a link to Federal Communications Commission, Office of Engineering & Technology, OET Bulletin 56, August 1999, Questions and Answers about Biological Effects & Potential Hazards of Radiofrequency Electromagnetic Fields: **Click Here**

During servicing or replacement, our employees will use RF/EME source equipment which meet applicable RF/EME & other safety standards when new & during the time of use, including after any modifications.

Personal Protective Equipment

A careful, systematic personal protective equipment selection process is used to identify what, if any, protection is required to reduce or eliminate the possibility of overexposure to non-ionizing radiation. Hazard assessment, performed by our program administrator Matt Landers, starts with a thorough knowledge of our job sites, work procedures, and methods of operation. This includes the hazards that may be created by other contractors working in the vicinity of our employees.

Identifying the source of the hazard allows for consideration of administrative or engineering controls to eliminate the hazard as opposed to providing protection against it. Because administrative and engineering controls are passive – no employee involvement is required – they are preferable to PPE & must be utilized first.

A PPE selection is made by analyzing the above information and evaluating the type of risk, the level of risk, the potential for injury and the possible seriousness of that injury. PPE, which is compatible with the above risks and work situation, is considered. Actual selection involves all the above factors plus an attempt to provide a level of protection greater than the minimum required.

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Maintenance and Inspection

Cleanliness takes on an added importance when dealing with PPE designed to protect the eyes & face. Dirty or fogged lenses can impair vision &, rather than offer protection from a hazard, actually becomes a contributory factor in causing an accident.

PPE will be visually inspected before each use and if defects are noticed, it will not be used. PPE will be maintained in accordance with the manufacturer's instructions and, where appropriate, kept in a sanitary condition.

Lastly, should PPE become contaminated with a chemical substance and decontamination is impossible, the PPE will be properly disposed of following the disposal instructions on the SDS for that substance.

Medical Surveillance

The purpose of medical surveillance is for the early identification of conditions, if any, that could present an increased risk of adverse health effects related to the task being performed.

Based on the type of work being performed, including consideration of factors such as the duration of the task, the materials being used, and the potential for exposure, medical surveillance is either recommended or required for the job.

The primary purpose of the medical surveillance program is to identify medical conditions that could lead to an occupational disease.

The secondary objective is to assure compliance with federal and state regulations which require medical monitoring when employees use certain materials.

Training

All PPE training will be documented, and records will be maintained for all employees. Affected employees will be given an understanding of:

a. General radio frequency safety awareness
b. Radio frequency exposure limits.
c. Radio frequency hazard controls.
d. Radio frequency interaction with medical devices and implants.
e. Over-exposure incident response.
f. Electro-explosive device considerations.

Retraining

Employees will be retrained when there is reason to believe they do not have the understanding and skill required work safely. Situations requiring retraining include, but are not limited to, the following:

a. When changes in the workplace render previous training obsolete or inadequate.

b. When changes in the types of equipment to be used render previous training obsolete or inadequate; or
c. When inadequacies in an affected employee's knowledge indicate that the employee no longer has the requisite understanding or skill necessary to use equipment or perform the job safely.

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Rigging for Material Handling

29 CFR 1926.251 - Rigging equipment for material handling

Note: The below information is applicable to the following crane types and operations:

1. **Articulating/knuckle-boom truck cranes that deliver material to a construction site when used to transfer materials from the truck crane to the ground, without arranging the materials in a particular sequence for hoisting.**
2. **Articulating/knuckle-boom truck cranes that deliver material to a construction site when the crane is used to transfer building supply sheet goods or building supply packaged materials from the truck crane onto a structure, using a fork/cradle at the end of the boom, but only when the truck crane is equipped with a properly functioning automatic overload prevention device. Such sheet goods or packaged materials include but are not limited to: sheets of sheet rock, sheets of plywood, bags of cement, sheets or packages of roofing shingles, and rolls of roofing felt.**

Note: The above articulating/knuckle-boom crane exclusion does not apply when it is used to 1) hold, support or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure; 2) when the material being handled is a prefabricated component such as precast concrete members or panels, roof trusses, prefabricated building sections such as, but not limited to: floor panels, wall panels, roof panels, roof structures, or similar items; and, 3) when the material being handled by the crane is a structural steel member (for example, steel joists, beams, columns, steel decking (bundled or unbundled) or a component of a systems-engineered metal building.

3. **Other rigging requirements are found in the applicable provisions of Cranes and Derricks in Construction, found in Section III of this program, specifically, 1926.1401, 03, 04, 07, 08, 23, 27, 31, & 33.**

Prior to use on each shift, rigging equipment, including slings and all fastenings and attachments, will be inspected for damage or defects by a qualified person. Additional inspections will be performed during sling use and where service conditions warrant, to ensure that it is safe.

Defective/damaged equipment including slings and rigging will not be used and will be immediately removed from service.

Per 1926.251(a)(3), rigging equipment, when not in use, will be removed from the immediate work area and stored properly so as not to present a hazard to employees.

Under no circumstances may any employee be under a suspended load.

Our rigging equipment will comply with **ASME B30.26** & **B30.9** Rigging Hardware Requirements.

29 CFR 1926.251, *Rigging Equipment for Material Handling*, contains Tables H-1 to H-2 which indicate rated capacities for various types of slings and grommets, safe working loads for shackles, number and spacing of U-Bolt Wire Rope Clips, and maximum allowable wear at any point of link.

Welded alloy steel chain slings must have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer. Of course, hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, will have a rated capacity at least equal to that of the chain.

Rigging equipment will **not be loaded in excess** of its recommended safe working load and load identification will be attached to the rigging.

Specific requirements for use and inspection of alloy steel chains, wire rope, natural rope and synthetic fiber, synthetic webbing, and shackles are found in the above standards.

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In addition to following the requirements in **29 CFR 1926.251**, *Rigging equipment for material handling*, and other requirements in this and other standards applicable to rigging, when rigging is used for assembly/ disassembly, the employer must ensure that:

a. The rigging work is done by a qualified rigger.
b. Synthetic slings are protected from: abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression.

   Note: Requirements for the protection of wire rope slings are contained in 29 CFR 1926.251(c)(9).

c. When synthetic slings are used, the synthetic sling manufacturer's instructions, limitations, specifications and recommendations must be followed.

Rigger Training, Qualification and Certification:

All costs associated with training will be at no expense to the employee.

Riggers must be qualified. A qualified person means a person who, by possession of a recognized degree certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

Additionally, when working within the petrochemical industry, the provisions of API2D 2-3 and API2D 3.14 apply. Specifically, only personnel with training and experience who have completed a rigger training program (including crane operators and inspectors) may attach or detach lifting equipment to loads or lifting loads.

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Scissor-Lift Fall Protection

What type of fall protection is required for scissor-lifts? This apparently simple question has a relatively simple answer. However, how it is derived is somewhat complicated because OSHA does not have a standard to deal with this issue.

Clearly, there is a hazard – falling from height. However, fall protection while using a scissor-lift is not covered in the fall protection, scaffold and ladder fall protection, nor aerial lift fall protection standards.

Section 5(a)(1) of the Occupational Safety and Health Act, commonly referred to as the General Duty Clause is a “catch all clause” which states: "Each employer will furnish to each of its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

In the absence of a specific standard relating to a safety or health risk, the above is the reference OSHA will cite.

When assessing compliance efforts, OSHA considers the requirements of pertinent national consensus standards. In the case of scissor-lifts, **ANSI/SIA A92.6-1990**, *Self-propelled Elevated Work Platforms*, and **ANSI/SIA A92.3**, *Manually Propelled Elevating Aerial Platforms*, are used.

Fall protection is provided by employees maintaining firm footing on the lift and using guardrails. Under no circumstances are employees to place ladders or other items on the lift to extend their reach. Per ANSI/SIA standards, with which OSHA concurs, "Use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach will be prohibited.” Use of these items negates the value of the guardrail system and may possibly exceed the scissor-lift’s design limits for stability.

Further, personnel are not to tie off to items adjacent to the lift – the most obvious reasons are the anchorage point may not be sufficient and movement of the lift would pull the employee out of and off of the lift.

If, for some reason, guardrails are not being provided for specific operational reasons, then a personal fall protection system may be used which would include an anchorage point, lanyard and safety harness.

However, this option is severely limited because its design would have to be approved by a registered engineer or the scissor-lift manufacturer would have to approve the use of the lift as an anchorage.

Under ideal conditions, rarely found on a construction site, scissor-lifts may be moved with the lift extended. However, should obstacles, debris, drop-offs, holes, depressions, ramps or other hazards be present, the lift must be lowered prior to movement.

Finally, if the employee leaves the safety of the scissor-lift platform while working at height, some sort of approved fall protection system must be employed.

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Signs & Tags

29 CFR 1926.200 - Accident prevention signs and tags

When appropriate, signs and tags will be used to warn of specific hazards. They must be visible at all times when work is being performed and must be removed or covered promptly when the hazards no longer exist.

Note: Construction areas must have posted legible traffic signs at points of hazard

Types of signs are classified according to their use, and their design is regulated by OSHA standard. All personnel will be instructed in the meaning of the various types of signs. Sign usage includes:

a. Danger Signs (Red, Black & White): indicates immediate danger and denotes that special precautions are necessary.
b. Caution Signs (Yellow Background): warns of a potential hazard or cautions against an unsafe practice.
c. Safety Instruction Signs (White Background): used to provide general instructions and suggestions relative to safety measures.

The wording on signs must be positive, clear, concise, and easy to understand or the sign loses its value.

Accident prevention tags will be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. They will not be used in place of, or as a substitute for, accident prevention signs, guarding or other positive means of protection are used. All tags must have:

a. A signal word: “Danger,” “Caution,” “Warning,” “BIOHAZARD” (or its symbol) and a major message, and
b. A major message such as: “High Voltage” or “Do not start”. (Major messages indicate the specific hazardous condition.)

The color scheme for tags is basically the same as for signs:

red = danger

yellow = caution

orange = warning

fluorescent orange = biological hazard

Danger Tags means indicate an immediate hazard that presents a threat of death or serious injury.

Caution Tags means indicate a non-immediate hazard or unsafe practice that presents a lesser threat of injury.

Warning Tags means indicate a hazard between “Danger” and “Caution”.

BIOHAZARD Tags means indicate the actual or potential presence of a biological hazard and identify equipment, rooms, containers, etc. that may be contaminated.

Pay attention to signs and tags and realize that they are in place for only one reason – your safety.

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Silica Exposure

29 CFR 1926.1153 Respirable Crystalline Silica

Construction employers must comply with all requirements of the standard by September 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.

Overview

Our Silica program applies to all workplace exposures to respirable crystalline silica. The only exception is when employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

Definitions

The following definitions apply to our silica program will help ensure that our employees fully understand the information provided.

Action level means a concentration of airborne respirable crystalline silica of 25 µg/m3, calculated as an 8-hour TWA.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

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. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in paragraph (g) of this section.

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 mono-dispersed 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.

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 paragraph (h) of this section.

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.

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Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

This section means this respirable crystalline silica standard, 29 CFR 1926.1153.

Specified Exposure Control Methods

If any of our employees are engaged in a task identified on Table 1 below, we will fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task.

Exception: We must assess and limit the exposure of our employees to safe levels of respirable crystalline silica using the alternative exposure control methods following Table 1.

Table 1: Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
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
Handheld power saws (any blade diameter)	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.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
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

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Walk-behind 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.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	APF 10	APF 10
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
Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
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
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.	APF 10	APF 10

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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. OR	None	None
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
	OR 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.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
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.	APF 10	APF 25

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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
	OR 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.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	None	APF 10
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. OR	None	None
	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

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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
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
	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. OR	None	None
	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
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. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None

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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
	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
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. OR	None	None
	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, we must:

a. Provide a method of exhaust to minimize the accumulation of visible airborne dust for tasks performed indoors or in enclosed areas.
b. Apply water at flow rates sufficient to minimize release of visible dust for tasks performed using wet methods
c. If an enclosed cab or booth is used, we must ensure that it:
    1. Is maintained as free as practicable from settled dust;
    2. Has door seals and closing mechanisms that work properly;
    3. Has gaskets & seals that are in good condition & working properly;
    4. Is under positive pressure maintained through continuous delivery of fresh air;
    5. 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
    6. Has heating and cooling capabilities.

If one of our employees performs more than one task on Table 1 during the course of a single work shift, the total time for all tasks will be considered. If it's more than 4 hours in total, the employees must use the respiratory protection specified in the > 4 hours/shift column. If combined it's less than 4 hours, employee will follow the guidelines in the ≤ 4 hours/shift column.

Alternative Exposure Control Methods

If we are unable to fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1, we must ensure the following requirements are in place.

Permissible Exposure Limit (PEL)

We must ensure that none of our employees are exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/m3, calculated as an 8-hour TWA.

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Exposure Assessment

We have to 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. This can be accomplished using one of the following options:

Performance Option:

The performance option requires that we must 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:

If we use the scheduled monitoring option, we have to have provide 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, we may sample a representative fraction of these employees. If we use representative sampling, we must sample the employees who are expected to have the highest exposure to respirable crystalline silica.

If initial exposure monitoring indicates that certain employee's exposures are below the action level, we may discontinue monitoring for those employees.

If the most recent exposure monitoring indicates that our employee's exposures are at or above the action level but at or below the PEL, we will ensure that the monitoring is repeated within six months of those results.

If the most recent exposure monitoring indicates that our employee's exposures are above the PEL, we will be sure to repeat the monitoring within three months of those results.

If the most recent exposure monitoring results (after the first round of monitoring) indicates that our employee's exposures are below the action level, then we will repeat the monitoring within six months of those results to determine if we need to continue monitoring.

If our repeat monitoring results indicate 2 consecutive measurements, taken seven or more days apart, are below the action level, we may discontinue monitoring for our employees whose exposures are represented by the monitoring.

Reassessment of Exposures:

It is our responsibility as the employer to provide a hazard free workplace for our employees and if we have any reason to believe that new or additional exposures at or above the action level have occurred, we will reassess employee exposures.

We will reassess exposures whenever we have 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.

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Methods of Sample Analysis:

We will ensure that all of our exposure monitoring samples are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in 1926.1153 - Appendix A.

Note: Requirements for laboratory evaluation of exposure samples are require to begin on June 23, 2018.

Employee Notification of Assessment Results:

We 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 within five working days after completing an exposure assessment.

If an exposure assessment indicates that our employee's exposure is above the PEL, we will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Observation of Monitoring:

We will provide all 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, we must provide the observer with protective clothing and equipment at no cost and must ensure that the observer uses such clothing and equipment correctly.

Methods of Compliance

Engineering and Work Practice Controls:

We must use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless we 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, we will still use them to reduce our employee's exposure to the lowest feasible level. We will then supplement those controls with the use of respiratory protection in accordance with our Respiratory Protection Program.

Abrasive Blasting:

We must also comply with other OSHA standards, in addition to the engineering and work practice controls previous discussed, if abrasive blasting is conducted using crystalline silica-containing blasting agents or if abrasive blasting is conducted on substrates that contain crystalline silica.

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Respiratory Protection

Respiratory Protection Program

When respiratory protection is required by this section, we will provide each of our employee's an appropriate respirator that complies with the requirements of 29 CFR 1910.134 we will use our respiratory protection program.

Respiratory protection is required:

a. Where specified by Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica.
b. For tasks not listed in Table 1, or where we do not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:
    1. Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
    2. 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
    3. During tasks for which we have implemented all feasible engineering and work practice controls and those controls are not sufficient to reduce exposures to or below the PEL.

Specified Exposure Control Methods

If we are able to fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica, we will be considered to be in compliance with paragraph (e)(1) of this section and the requirements for selection of respirators in 29 CFR 1910.134(d)(1)(iii) and (d)(3) with regard to exposure to respirable crystalline silica.

Housekeeping

We will not allow dry sweeping or dry brushing when it 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.

Our employees are not permitted to use compressed air to clean clothing or surfaces when it could contribute to employee exposure to respirable crystalline silica unless:

a. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
b. No alternative method is feasible.

Written Exposure Control Plan

We will establish and implement a written exposure control plan that contains at least the following elements:

a. A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
b. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;

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c. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
d. 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.

We will review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.

We will make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this program, their designated representatives, the Assistant Secretary, and the Director.

We will designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

Medical Surveillance

We will make medical surveillance available to our employees at no cost and at a reasonable time and place for each who will be required under this program to use a respirator for 30 or more days per year.

We will ensure that all medical examinations and procedures required by this program are performed by a Physician or other licensed health care professional or PLHCP.

Initial Examination

We must 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 this section within the last three years. The examination must consist of:

a. 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; 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;
b. A physical examination with special emphasis on the respiratory system;
c. A chest X-ray (a single posteroanterior 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 Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a NIOSH-certified B Reader;
d. 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;
e. Testing for latent tuberculosis infection; and
f. Any other tests deemed appropriate by the PLHCP.

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Periodic Examinations

We will make medical examinations available that include the procedures described in paragraph (h)(2) of this section (except paragraph (h)(2)(v)) at least every three years, or more frequently if recommended by the PLHCP.

Information Provided to the PLHCP

We will ensure that the examining PLHCP has a copy of this standard, and must provide the PLHCP with the following information:

a. A description of the employee's former, current, & anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;
b. The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;
c. A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
d. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the employer.

PLHCP's Written Medical Report for the Employee

We must ensure that the PLHCP explains to our employee the results of the medical examination and provides them with a written medical report within 30 days of the medical examination performed. The written report must contain:

a. 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;
b. Any recommended limitations on the employee's use of respirators;
c. Any recommended limitations on the employee's exposure to respirable crystalline silica; and
d. A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

PLHCP's Written Medical Opinion for the Employer

We must also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion will contain **only** the following:

a. The date of the examination;
b. A statement that the examination has met the requirements of this section;
c. Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion can also contain either or both of the following:

a. Any recommended limitations on the employee's exposure to respirable crystalline silica;
b. A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

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We must ensure that each employee receives a copy of that written medical opinion within 30 days of each medical examination performed.

Additional Examinations

If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, we must make a medical examination by a specialist available within 30 days after receiving the PLHCP's written opinion.

We must ensure that the examining specialist is provided with all of the information that we provided to the PLHCP.

We must ensure that the specialist explains the results of the medical examination to the employee and provides them with a written medical report within 30 days of the examination that meets the requirements of paragraph (h)(5) (except paragraph (h)(5)(iv)) of this section.

We will also obtain a written opinion from the specialist within 30 days of the medical examination that meets the requirements of paragraph (h)(6) (except paragraph (h)(6)(i)(B) and (ii)(B)) of this section.

Communication of Silica Hazards to Employees

Hazard communication

We will include respirable crystalline silica in Hazard Communication program. This requires that we ensure that our employees have access to labels on containers of crystalline silica and safety data sheets. Additionally, we will ensure our employees are trained in accordance with the provisions of HCS and the below information.

Employee Information and Training

We will ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Additionally, we must ensure that our employees can demonstrate knowledge and understanding of at least the following:

a. The health hazards associated with exposure to respirable crystalline silica;
b. Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
c. Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
d. The contents of this section;
e. The identity of the competent person designated by the employer in accordance with paragraph (g)(4) of this section; and
f. The purpose and a description of the medical surveillance program required by paragraph (h) of this section.

We will make a copy of this section readily available and without cost to our employees covered by this program.

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Recordkeeping

Air Monitoring Data

We 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:

a. The date of measurement for each sample taken;
b. The task monitored;
c. Sampling and analytical methods used;
d. Number, duration, and results of samples taken;
e. Identity of the laboratory that performed the analysis;
f. Type of personal protective equipment, such as respirators, worn by the employees monitored; and
g. Name and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Objective Data

We will make and maintain an accurate record of all objective data relied upon to comply with the requirements of this section. This record will include at least the following information:

a. The crystalline silica-containing material in question;
b. The source of the objective data;
c. The testing protocol and results of testing;
d. A description of the process, task, or activity on which the objective data were based; and
e. Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Medical Surveillance

We will make and maintain an accurate record for each employee covered by medical surveillance under paragraph (h) of this section. The record will include the following information about the employee:

a. Name;
b. A copy of the PLHCPs' and specialists' written medical opinions; and
c. A copy of the information provided to the PLHCPs and specialists.

Medical Record Retention

We will maintain medical records and make them available in accordance with 29 CFR 1910.1020, including that medical record for each employee be preserved and maintained for at least the duration of employment plus thirty (30) years.

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Slings

29 CFR 1910.184 - Slings

29 CFR 1926.251 - Rigging equipment for material handling

A sling is the assembly which connects a load to the material handling equipment. There are many types of slings including, but not limited to:

a. Bridle wire rope sling
b. Cable laid endless sling-mechanical joint sling
c. Cable laid grommet-hand tucked sling
d. Cable laid rope sling-mechanical joint sling
e. Strand laid endless sling-mechanical joint sling
f. Strand laid grommet-hand-tucked sling

Additionally, slings are made of various materials such as alloy steel chain, wire rope, and natural and synthetic fiber rope. Each of these materials has their own operating limits which include not only capacity, but temperature, kinks, cuts, and specific conditions.

All slings, regardless of type, must be inspected each day before use and all fastenings and attachments must be inspected for damage or defects by a competent person. Depending on work conditions, additional inspections may be required. Damaged or defective slings will be immediately removed from service.

Below are safe operating practices which must be followed:

a. Slings may not be shortened with knots or bolts or other makeshift devices.
b. Sling legs may not be kinked.
c. Slings may not be loaded in excess of their rated capacities.
d. Slings used in a basket hitch must have the load balanced to prevent slippage.
e. Slings must be securely attached to their loads.
f. Slings must be padded or protected from the sharp edges of their loads.
g. Suspended loads must be kept clear of all obstructions.
h. All employees must be kept clear of loads about to lifted and of suspended loads.
i. Hands or fingers may not be placed between the sling and its load while the sling is being tightened around the load.
j. Shock loading is prohibited.
k. A sling may not be pulled from under a load when the load is resting on it.

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Stairs

29 CFR 1926.1052 - Stairways

Stairways that are not a permanent part of the structure on which construction work is being performed must have landings of at least 30 inches in the direction of travel and extend at least 22 inches in width at every 12 feet or less of vertical rise. Additionally:

a. Riser height and tread depth must be uniform within each flight of stairs.
b. Where doors or gates open directly on a stairway, a platform will be provided, and the swing of the door must not reduce the effective width of the platform to less than 20 inches.
c. Metal pan landings and metal pan treads, when used, must be secured in place before filling with concrete or other material.
d. All parts of stairways will be free of hazardous projections, such as protruding nails.
e. Slippery conditions on stairways will be eliminated before use.
f. Except during stairway construction:
    1. Foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled at a later date, unless the stairs are temporarily fitted with solid material at least to the top edge of each pan. Temporary treads and landings will be replaced when worn below the level of the top edge of the pan.
    2. Foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.

Treads for temporary service will be made of wood or other solid material and installed the full width and depth of the stair.

Stairways having four or more risers or rising more than 30 inches will be equipped with:

a. At least one handrail
b. One stair rail system along each unprotected side or edge.

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29 CFR 1910.268 - Telecommunications

Battery Handling

When measuring storage battery specific gravity or handling electrolyte, employees will be provided and required to wear eye protection devices which provide side as well as frontal eye protection. In addition, acid resistant gloves and aprons will be worn for protection against spattering.

Facilities for quick drenching or flushing of the eyes and body will be provided unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities.

Employees assigned to work with storage batteries will be instructed in emergency procedures such as dealing with accidental acid spills.

Electrolyte (acid or base, and distilled water) for battery cells will be mixed in a well-ventilated room. Acid or base will be poured gradually, while stirring, into the water. Water will never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte will never be placed in metal containers nor stirred with metal objects.

When taking specific gravity readings, the open end of the hydrometer will be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.

Telecommunications Operations Near Energized Overhead Power Lines and Parts

Employees are prohibited from approaching or taking any conductive object closer to any electrically energized overhead power lines and parts than prescribed in Table R-2, unless:

a. The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved will be considered adequate insulation), or
b. The energized parts are insulated or guarded from the employee and any other conductive object at a different potential, or
c. The power conductors and equipment are deenergized and grounded.

Table R-2—Approach Distances to Exposed Energized Overhead Power Lines and Parts

Voltage range (phase to phase, RMS)	Approach distance (inches)
300 V and less	Avoid contact
Over 300V, not over 750V	12
Over 750V not over 2 kV	18
Over 2 kV, not over 15 kV	24
Over 15 kV, not over 37 kV	36
Over 37 kV, not over 87.5 kV	42
Over 87.5 kV, not over 121 kV	48
Over 121 kV, not over 140 kV	54

Metal measuring tapes, metal measuring ropes, or tapes containing conductive strands may not be used when working near exposed energized parts. Where it is necessary to measure clearances from energized parts, only nonconductive devices will be used.

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Any employee finding crossed or fallen wires which create or may create a hazardous situation at the work area will be instructed to remain on guard or adopt other adequate means to warn other employees of the danger and notify the proper authority at the earliest practical moment.

Vehicle-mounted elevating and rotating work platforms will not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth above in Table R-2.

Cable Fault Locating and Testing:

Employees involved in using high voltages to locate trouble or test cables will be instructed in the precautions necessary for their own safety and the safety of other employees.

Before the voltage is applied, cable conductors will be isolated to the extent practicable. Employees will be warned, by such techniques as briefing and tagging at all affected locations, to stay clear while the voltage is applied.

Electrical Tool Inspection:

All live-line tools will be visually inspected before use each day. Prior to use, tools must be wiped clean. Tools with apparent hazardous defects must be tagged and removed from service until tested with portable or laboratory testing equipment.

All rubber insulating equipment will be visually inspected prior to use and an “air test” will be performed on rubber gloves prior to use.

In addition, periodic electrical, visual, and mechanical retesting of all insulating gloves, blankets, and other rubber insulating equipment will be conducted at least at the following maximum retesting intervals:

	Natural Rubber	Synthetic Rubber
New	12 Months	18 Months
Re-issued	9 Months	15 Months

Gloves and blankets will be marked to indicate compliance with the retest schedule and the date the next test is due. Gloves found to be defective in the field or by the above tests set forth will be destroyed by cutting them open from the finger to the gauntlet.

Grounding for Employee Protection - Pole Lines

Electric power conductors and equipment will be considered as energized unless the employee can visually determine that they are bonded to one of the following acceptable grounds:

a. A vertical ground wire which has been tested, found safe, and is connected to a power system multigrounded neutral or the grounded neutral of a power secondary system where there are at least three services connected;
b. Communications cable sheath or shield and its supporting strand where the sheath or shield is:
    1. Bonded to an underground or buried cable which is connected to a central office ground, or
    2. Bonded to an underground metallic piping system, or
    3. Bonded to a power system multigrounded neutral or grounded neutral of a power secondary system which has at least three services connected;

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c. Guys which are bonded to the grounds specified in paragraphs (b)(1) and (b)(2), above, and which have continuity uninterrupted by an insulator; and
d. If all of the preceding grounds are not available, arrays of driven ground rods where the resultant resistance to ground will be low enough to eliminate danger to personnel or permit prompt operation of protective devices.

Nonworking open wire communications lines will be bonded to one of the grounds listed above.

Metal power conduit on joint use poles, exposed vertical power ground wires, and street light fixtures which are below communications attachments or less than 20 inches above these attachments, will be considered energized and will be tested for voltage unless the employee can visually determine that they are bonded to the communications suspension strand or cable sheath.

If no hazardous voltage is shown by the voltage test, a temporary bond will be placed between such streetlight fixture, exposed vertical power grounding conductor, or metallic power conduit and the communications cable strand. Temporary bonds used for this purpose will have sufficient conductivity to carry at least 500 amperes for a period of one second without fusing.

When attaching grounds (bonds), the first attachment will be made to the protective ground. When removing bonds, the connection to the line or equipment will be removed first. Insulating gloves will be worn during these operations.

Temporary Grounding of Suspension Strand:

The suspension strand will be grounded to the existing grounds listed above when being placed on jointly used poles or during thunderstorm activity.

Where power crossings are encountered on nonpoint lines, the strand will be bonded to an existing ground listed above as close as possible to the crossing. This bonding is not required where crossings are made on a common crossing pole unless there is an upward change in grade at the pole.

Where roller-type bonds are used, they will be restrained so as to avoid stressing the electrical connections.

Bonds between the suspension strand and the existing ground will be at least No. 6AWG copper.

Temporary bonds will be left in place until the strand has been tensioned, dead-ended, and permanently grounded.

Note: The above requirements of this sections do not apply to the installation of insulated strand.

Handling Suspension Strand:

When handling cable suspension strand which is being installed on poles carrying exposed energized power conductors, employees will be required to wear insulating gloves and avoid body contact with the strand until after it has been tensioned, dead-ended and permanently grounded.

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The strand must be restrained against upward movement during installation on joint-use poles, where there is an upward change in grade at the pole, and on non-joint-use poles, where the line crosses under energized power conductors.

Derrick Trucks & Similar Equipment for Telecommunications Operations

Derrick trucks and similar equipment must not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table R-2. See *Telecommunications Operations Near Energized Overhead Power Lines*.

Note: When derricks are used to handle poles near energized power conductors, these operations must comply with the requirements contained in Telecommunications Operations Near Energized Overhead Power Lines and Parts and Handling Poles Near Energized Power Conductors.

Moving parts of equipment and machinery carried on or mounted on telecommunications line trucks must be guarded or danger signs will be displayed and barricades erected, as necessary, to warn other personnel in the area.

Derricks and the operation of derricks must comply with the following requirements:

a. Manufacturer's specifications, load ratings and instructions for derrick operation will be strictly observed.
b. Rated load capacities and instructions related to derrick operation will be conspicuously posted on a permanent weather-resistant plate or decal in a location on the derrick that is plainly visible to the derrick operator.
c. Prior to derrick operation the parking brake must be set, and the stabilizers extended if the vehicle is so equipped. When the vehicle is situated on a grade, at least two wheels must be chocked on the downgrade side.
d. Only persons trained in the operation of the derrick will be permitted to operate the derrick.
e. Hand signals to derrick operators will be those prescribed by ANSI B30.6-1969, "Safety Code for Derricks", which is incorporated by reference as specified in §1910.6.
f. The derrick and its associated equipment will be inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records will be maintained including the dates of inspections, and necessary repairs made, if corrective action was required.
g. Modifications or additions to the derrick and its associated equipment that alter its capacity or affect its safe operation will be made only with written certification from the manufacturer, or other equivalent entity, such as a nationally recognized testing laboratory, that the modification results in the equipment being safe for its intended use. Such changes will require the changing and posting of revised capacity and instruction decals or plates. These new ratings or limitations will be as provided by the manufacturer or other equivalent entity.
h. Wire rope used with derricks will be of improved plow steel or equivalent. Wire rope safety factors will be in accordance with American National Standards Institute B30.6-1969.

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i. Wire rope will be taken out of service, or the defective portion removed, when any of the following conditions exist:
    1. The rope strength has been significantly reduced due to corrosion, pitting, or excessive heat, or
    2. The thickness of the outer wires of the rope has been reduced to two-thirds or less of the original thickness, or
    3. There are more than six broken wires in any one rope lay, or
    4. There is excessive permanent distortion caused by kinking, crushing, or severe twisting of the rope.

Handling Poles Near Energized Power Conductors

When cranes, derricks, or other mechanized equipment are used for setting, moving, or removing poles, all necessary precautions will be taken to avoid contact with energized power conductors or equipment.

Joint use poles may not be set, moved, or removed where the nominal voltage of open electrical power conductors exceeds 34.5kV phase to phase (20kV to ground).

Poles that are to be placed, moved or removed during heavy rains, sleet or wet snow in joint lines carrying more than 8.7kV phase to phase voltage (5kV to ground) must be guarded or otherwise prevented from direct contact with overhead energized power conductors.

In joint lines where the power voltage is greater than 750 volts but less than 34.5kV phase to phase (20 kV to ground), wet poles being placed, moved or removed must be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.

In joint lines where the power voltage is greater than 8.7 kV phase to phase (5kV to ground) but less than 34.5kV phase to phase (20 kV to ground), dry poles being placed, moved, or removed must be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.

Where wet or dry poles are being removed, insulation of the pole is not required if the pole is cut off 2 feet or more below the lowest power wire and also cut off near the ground line.

Insulating gloves must be worn when handling the pole with either hands or tools, when there exists a possibility that the pole may contact a power conductor. Where the voltage to ground of the power conductor exceeds 15kV to ground, Class II gloves (as defined in ANSI J6.6-1971) must be used. For voltages not exceeding 15kV to ground, insulating gloves must have a breakdown voltage of at least 17kV.

The guard or insulating material used to protect the pole must meet the appropriate 3-minute proof test voltage requirements contained in the ANSI J6.4-1971.

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When there exists a possibility of contact between the pole or the vehicle-mounted equipment used to handle the pole, and an energized power conductor, the following precautions must be observed:

a. When on the vehicle which carries the derrick, avoid all contact with the ground, with persons standing on the ground, and with all grounded objects such as guys, tree limbs, or metal signposts. To the extent feasible, remain on the vehicle as long as the possibility of contact exists.
b. When it is necessary to leave the vehicle, step onto an insulating blanket and break all contact with the vehicle before stepping off the blanket and onto the ground. As a last resort, if a blanket is not available, the employee may jump cleanly from the vehicle.
c. When it is necessary to enter the vehicle, first step onto an insulating blanket and break all contact with the ground, grounded objects and other persons before touching the truck or derrick.

Handling and Storage of Poles and Cable Reels:

When working with poles in piles or stacks, work must be performed from the ends of the poles as much as possible, and precautions must be taken for the safety of employees at the other end of the pole. During pole hauling operations, all loads must be secured to prevent displacement. Lights, reflectors and/or flags must be displayed on the end and sides of the load as necessary.

In the case of hoisting machinery equipped with a positive stop load holding device, it will be permissible for the operator to leave his or her position at the controls (while a load is suspended) for the sole purpose of assisting in positioning the load prior to landing it. Prior to unloading steel, poles, crossarms, and similar material, the load will be thoroughly examined to ascertain that the load has not shifted, that binders or stakes have not broken, and that the load is not otherwise hazardous to employees.

Cable reels in storage will be checked or otherwise restrained when there is a possibility that they might accidentally roll from position.

Telecommunications Pole Work

Safety straps and body belts will be worn when working at elevated positions on poles, towers or similar structures, which do not have adequately guarded work areas.

Before installing or removing wire or cable, the pole or structure will be guyed, braced, or otherwise supported, as necessary, to prevent failure of the pole or structure.

Existing wood poles:

Unless temporary guys or braces are attached, the following wood poles will be tested and determined to be safe before employees are permitted to climb them:

a. Dead-end poles, except properly braced or guyed "Y" or "T" cable junction poles,
b. Straight line poles which are not storm guyed and where adjacent span lengths exceed 165 feet,
c. Poles at which there is a downward change in grade and which are not guyed or braced corner poles or cable junction poles,
d. Poles which support only telephone drop wire, and
e. Poles which carry less than ten communication line wires. On joint use poles, one power line wire is considered as two communication wires for purposes of this paragraph.

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One of the following methods or an equivalent method will be used for testing wood poles:

a. Rap the pole sharply with a hammer weighing about 3 pounds, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound and/or a less pronounced hammer rebound. When decay pockets are indicated, the pole will be considered unsafe. Also, prod the pole as near the ground line as possible using a pole prod or a screwdriver with a blade at least 5 inches long. If substantial decay is encountered, the pole will be considered unsafe.
b. Apply a horizontal force to the pole and attempt to rock it back and forth in a direction perpendicular to the line. Caution will be exercised to avoid causing power wires to swing together. The force may be applied either by pushing with a pike pole or pulling with a rope. If the pole cracks during the test, it will be considered unsafe.

Poles or structures determined to be unsafe by test or observation may not be climbed until made safe by guying, bracing or other adequate means. Poles determined to be unsafe to climb will be tagged in a conspicuous place to alert and warn all employees of the unsafe condition until they are made safe.

Pole Climbers:

When pole climbers are used, they will be inspected before each day's use by a competent person for the following conditions: fractured or cracked gaffs or leg irons; loose or dull gaffs; broken straps or buckles. If any of these conditions exist, the defect will be corrected before the climbers are used.

Additionally, a gaff cut-out test will be performed at least weekly when in use. Pole climbers may not be used if the gaffs are less than 1 ¼ inches in length as measured on the underside of the gaff. The gaffs of pole climbers will be covered with safety caps when not being used for their intended purpose.

Pole climbers may not be worn when working in trees (specifically designed tree climbers must be used for tree climbing); working on ladders; working in an aerial lift; driving a vehicle; nor walking on rocky, hard, frozen, brushy or hilly terrain.

Working Position on Poles:

Climbing and working are prohibited above the level of the lowest electric power conductor on the pole (exclusive of vertical runs and streetlight wiring), except:

a. Where communications facilities are attached above the electric power conductors, and a rigid fixed barrier is installed between the electric power facility and the communications facility, or
b. Where the electric power conductors are cabled secondary service drops carrying less than 300 volts to ground and are attached 40 inches or more below the communications conductors or cables.

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Antenna Work-Radio Transmitting Stations 3-30 MHZ

Prior to grounding a radio transmitting station antenna, the rigger in charge will be required to do the following:

a. Prepare a danger tag signed with his or her signature,
b. Request the transmitting technician to shut down the transmitter and to ground the antenna with its grounding switch,
c. Be notified by the transmitting technician that the transmitter has been shut down, and
d. Tag the antenna ground switch personally in the presence of the transmitting technician after the antenna has been grounded by the transmitting technician.

Power will not be applied to the antenna, nor will the grounding switch be opened under any circumstances while the tag is affixed.

Where no grounding switches are provided, grounding sticks will be used, one on each side of line, and tags will be placed on the grounding sticks, antenna switch, or plate power switch in a conspicuous place.

When necessary to further reduce excessive radio frequency pickup, ground sticks or short circuits will be placed directly on the transmission lines near the transmitter in addition to the regular grounding switches.

In other cases, the antenna lines may be disconnected from ground and the transmitter to reduce pickup at the point in the field.

All radio frequency line wires will be tested for pickup with an insulated probe before they are handled either with bare hands or with metal tools.

The transmitting technician is required to warn the riggers about adjacent lines which are or may become energized.

When antenna work has been completed, the rigger in charge of the job must return to the transmitter, notify the transmitting technician in charge that work has been completed, and personally remove the tag from the antenna ground switch.

Underground Telecommunication Lines

The provisions of this section apply to the guarding of manholes and street openings, and to the ventilation and testing for gas in manholes and unvented vaults, where telecommunications field work is performed on or with underground lines.

When covers of manholes or vaults are removed, the opening will be promptly guarded by a railing, temporary cover, or other suitable temporary barrier which is appropriate to prevent an accidental fall through the opening and to protect employees working in the manhole from foreign objects entering the manhole.

While work is being performed in the manhole, a person with basic first aid training will be immediately available to render assistance if there is cause for believing that a safety hazard exists. Examples of manhole worksite hazards which will be considered to constitute a safety hazard include, but are not limited to:

a. Manhole worksites where safety hazards are created by traffic patterns that cannot be corrected by our traffic control provisions. See *Flaggers - Traffic Control*.
b. Manhole worksites that are subject to unusual water hazards that cannot be abated by conventional means.
c. Manhole worksites that are occupied jointly with power utilities. See *Joint power and telecommunication manholes*, below.

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Before an employee enters a manhole, the following steps will be taken:

a. The internal atmosphere will be tested for combustible gas and, except when continuous forced ventilation is provided, the atmosphere will also be tested for oxygen deficiency.
b. When unsafe conditions are detected by testing or other means, the work area will be ventilated and otherwise made safe before entry.
c. An adequate continuous supply of air will be provided while work is performed in manholes under any of the following conditions:
    1. Where combustible or explosive gas vapors have been initially detected and subsequently reduced to a safe level by ventilation,
    2. Where organic solvents are used in the work procedure,
    3. Where open flame torches are used in the work procedure,
    4. Where the manhole is located in that portion of a public right of way open to vehicular traffic and/or exposed to a seepage of gas or gases, or
    5. Where a toxic gas or oxygen deficiency is found.

Note: None of the above requirements apply to work in central office cable vaults that are adequately ventilated nor to work in unvented vaults.

Ladders will be used to enter and exit manholes exceeding 4 feet in depth. Ladders, step bolts, and manholes steps will meet the requirements of 1910 Subpart D and our safety program. See *Ladders*.

Joint Power and Telecommunication manholes:

While work is being performed in a manhole occupied jointly by an electric utility and a telecommunication utility, an employee with basic first aid training will be available in the immediate vicinity to render emergency assistance as may be required. This employee is not prohibited from occasionally entering a manhole to provide assistance other than in an emergency.

Note: The above requirement does not prohibit a qualified employee, working alone, from entering for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely.

Flames:

When open flames are used in manholes, the following precautions will be taken to protect against the accumulation of combustible gas:

a. A test for combustible gas will be made immediately before using the open flame device, and at least once per hour while using the device; and
b. A fuel tank (e.g., acetylene) may not be in the manhole unless in actual use.

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Tree Trimming for Telecommunication Workers

Employees engaged in pruning, trimming, removing, or clearing trees from lines will be required to consider all overhead and underground electrical power conductors to be energized with potentially fatal voltages, never to be touched (contacted), either directly or indirectly.

Employees engaged in line-clearing operations will be instructed that:

a. A direct contact is made when any part of the body touches or contacts an energized conductor, or other energized electrical fixture or apparatus.
b. An indirect contact is made when any part of the body touches any object in contact with an energized electrical conductor, or other energized fixture or apparatus.
c. An indirect contact can be made through conductive tools, tree branches, trucks, equipment, or other objects, or as a result of communications wires, cables, fences, or guy wires being accidentally energized.
d. Electric shock will occur when an employee, by either direct or indirect contact with an energized conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors will also cause electric shock which may result in serious or fatal injury.

Before any work is performed in proximity to energized conductors, the system operator/owner of the energized conductors will be contacted to ascertain if he/she knows of any hazards associated with the conductors which may not be readily apparent. This rule does not apply when operations are performed by or on behalf of the system operator/owner.

Working in Proximity to Electrical Hazards:

A close inspection will be made by the employee and by the foremen or supervisor in charge before climbing, entering, or working around any tree, to determine whether an electrical power conductor passes through the tree, or passes within reaching distance of an employee working in the tree. If any of these conditions exist either directly or indirectly, an electrical hazard will be considered to exist unless the system operator/owner has caused the hazard to be removed by deenergizing the lines or installing protective equipment.

Only qualified employees or trainees, familiar with the special techniques and hazards involved in line clearance, will be permitted to perform the work if it is found that an electrical hazard exists.

During all tree working operations aloft where an electrical hazard of more than 750V exists, there will be a second employee or trainee qualified in line clearance tree trimming within normal voice communication.

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Where tree work is performed by employees and trainees qualified in line-clearance tree trimming, the clearances from energized conductors given in Table R-3 will apply.

Table R-3—Minimum Working Distances from Energized Conductors for Line-Clearance Tree Trimmers and Line-Clearance Tree-Trimmer Trainees

Voltage Range (phase to phase) (kilovolts)	Minimum Working Distance
2.1 to 15.0	2 ft. 0 in.
15.1 to 35.0	2 ft. 4 in.
35.1 to 46.0	2 ft. 6 in.
46.1 to 72.5	3 ft. 0 in.
72.6 to 121.0	3 ft. 4 in.
138.0 to 145.0	3 ft. 6 in.
161.0 to 169.0	3 ft. 8 in.
230.0 to 242.0	5 ft. 0 in.
345.0 to 362.0	7 ft. 0 in.
500.0 to 552.0	11 ft. 0 in.
700.0 to 765.0	15 ft. 0 in.

Branches hanging on an energized conductor may only be removed using appropriately insulated equipment.

Rubber footwear, including lineman's overshoes, will not be considered as providing any measure of safety from electrical hazards.

Ladders, platforms, and aerial devices, including insulated aerial devices, may not be brought in contact with an electrical conductor. Reliance will not be placed on their dielectric capabilities.

When an aerial lift device contacts an electrical conductor, the truck supporting the aerial lift device will be considered as energized.

Storm Work and Emergency Conditions:

Since storm work and emergency conditions create special hazards, only authorized representatives of the electric utility system operator/owner and not telecommunication workers may perform tree work in these situations where energized electrical power conductors are involved.

When an emergency condition develops due to tree operations, work will be suspended, and the system operator/owner will be notified immediately.

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Aerial Splicing Platforms

Aerial splicing platforms are used to perform aerial cable work. An aerial splicing platform measures approximately 3 ft. × 4 ft. It is furnished with fiber or synthetic ropes for supporting it from aerial strand, detachable guy ropes for anchoring it, and a device for raising and lowering it with a handline.

Aerial tents, small tents usually constructed of vinyl coated canvas which are usually supported by light metal or plastic tubing, may be provided to protect employees in inclement weather while working on ladders, aerial splicing platforms, or aerial devices.

Note: Torches may be used on aerial splicing platforms or in buckets enclosed by tents provided the tent material is constructed of fire-resistant material and the torch is turned off when not in actual use. Aerial tents must be adequately ventilated while the torch is in operation.

Flame-type heaters may not be used within ground tents or on platforms within aerial tents unless the tent covers are constructed of fire-resistant materials and adequate ventilation is provided to maintain safe oxygen levels and avoid harmful buildup of combustion products and combustible gases.

Unless adequate railings are provided, safety straps and body belts will be used while working on elevated work platforms such as aerial splicing platforms, pole platforms, ladder platforms, and terminal balconies.

Test requirements for cable suspension strand

Before attaching a splicing platform to a cable suspension strand, the strand must be tested and determined to have strength sufficient to support the weight of the platform and the employee.

The following method or an equivalent method will be used for testing the strength of the strand:

A rope, at least three-eighths inch in diameter, will be thrown over the strand. On joint lines, the rope will be passed over the strand using tree pruner handles or a wire raising tool. If two employees are present, both will grip the double rope and slowly transfer their entire weight to the rope and attempt to raise themselves off the ground. If only one employee is present, one end of the rope which has been passed over the strand will be tied to the bumper of the truck, or other equally secure anchorage. The employee then will grasp the other end of the rope and attempt to raise himself or herself off the ground.

Where strand passes over electric power wires or railroad tracks, it will be inspected from an elevated working position at each pole supporting the span in question. The strand may not be used to support any splicing platform, scaffold or cable car, if any of the following conditions exist:

a. Corrosion so that no galvanizing can be detected,
b. One or more wires of the strand are broken,
c. Worn spots, or
d. Burn marks such as those caused by contact with electric power wires.

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Tools - Hand

29 CFR 1910.242 - Hand and Portable Powered Tools and Equipment - General

29 CFR 1910.243 - Guarding of Portable Powered Tools

29 CFR 1926.300 - General requirements

29 CFR 1926.301 - Hand tools

When using hand and power tools, appropriate PPE will be used to provide protection for the eyes, skin, ears, hands, feet, and respiratory system in accordance with our PPE Program located in Section III.

Any tool not in compliance with OSHA or ANSI standards will not be used. Such tools, as well as any tools found to be defective in any manner, will be identified as unsafe by tagging and removed from the job site.

All hand and power tools and similar equipment, whether furnished by the employer or the employee, will be maintained in a safe condition.

Portable electric hand tools will be:

a. Equipped with a three-wire cord having the ground wire permanently connected to the tool frame and means for grounding the other end; **or**
b. Double insulated type and permanently labeled as "Double Insulated"; **or**
c. Connected to the power supply by means of an isolating transformer, or other isolated power supply.

Here are basic procedures for the use of hand tools:

a. Hand tools will be used only for the purpose for which they are designed.
b. Hand tools will be kept clean and, where appropriate, oiled.
c. Hand tools which are damaged will not be used.
d. Handheld cutting tools will be kept sharp and will be sheathed or retracted when not in use.
e. When using a striking tool such as a hammer or chisel, safety glasses or safety goggles will be used.
f. Do not force tools.
g. If you are unfamiliar with the proper procedure for using a tool, ask your Supervisor for instruction.
h. Power tools may be operated only by those persons who are qualified by training or experience.
i. Do not alter guards on power tools; wear appropriate PPE.
j. Guards will be in place and operable at all times while the tool is in use. The guard will not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding will meet the requirements set forth in ANSI B15.1.
k. Electrical tools must be grounded, and, in the absence of permanent wiring, a Ground Fault Circuit Interrupter must be used.
l. Electric tools will not be lifted by their cords and pneumatic tools will not be lifted by their hoses.

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Tools - Pneumatic Powered

29 CFR 1926.102 - Eye and face protection

29 CFR 1926.300 - General requirements

29 CFR 1926.302 - Power-operated hand tools

Pneumatic powered tools must be safeguarded whenever there are hazardous employee exposures. This is especially important for point of operation guarding.

Three specific hazards associated with pneumatic powered tools which are unique to their use are noise levels, tool retention, and air hose pressure.

Care must be taken to assure that noise levels are within acceptable limits (noise monitoring may be necessary) and, if required, engineering controls and/or ear protection will be employed.

Guards will be used on power tools. Under no circumstances will guards be by-passed or altered.

Eye protection will be worn when using pneumatic powered tools in accordance with the owner/operator's manual.

Additionally, the following will be followed:

a. Pneumatic power tools will be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
b. Safety clips or retainers will be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
c. All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool will have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
d. Compressed air will not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment which meets the requirements of 29 CFR 1926 Subpart E. This would include eye, face, hand, head, and foot protection. The 30 p.s.i. requirement does not apply for concrete form, mill scale and similar cleaning purposes.
e. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings will not be exceeded.
f. The use of hoses for hoisting or lowering tools will not be permitted.
g. All hoses exceeding 1/2-inch inside diameter will have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.
h. Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) will be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.

Note: In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, will be provided.

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i. Lastly, abrasive blast cleaning nozzles will be equipped with an operating valve which must be held open manually. A support will be provided on which the nozzle may be mounted when it is not in use.
j. Guards will be in place and operable at all times while the tool is in use. The guard will not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding will meet the requirements set forth in ANSI B15.1.

Care must be taken to ensure that employees are not exposed to unsafe levels of respirable dust or crystalline silica.

The PEL for particles not otherwise regulated is 5.0 mg/m³. The PEL for respirable dust containing crystalline silica is determined by the below formula:

PEL = 10 mg/m³ ÷ (%SiO_2+2), where %SiO_2+2 refers to the amount of crystalline silica measured in the sample.

Our operations would not exceed these PEL's and respiratory protection is not required.

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Tools - Powder-Actuated

29 CFR 1926.102 - Eye and face protection

29 CFR 1926.300 - General requirements

29 CFR 1926.302 - Power-operated hand tools

A powder-actuated fastening tool propels a nail, pin, or fastener through an object to fasten it to another object. These tools, if misused, are extremely dangerous because essentially, they are similar to a pistol or rifle.

The speed of the projectile may range from 300 ft./second to 1290 ft./second.

Only trained and authorized persons may operate a powder actuated tool and, for safety, these tools should be kept secured when not in use.

Prior to use, the tool must be inspected and tested according to the manufacturer's instruction manual which should be kept with the tool.

Defective tools must not be used and they must be taken out of service.

Use of appropriate personal protective equipment – including, at least, eye/face and ear protection – is required not only for the operator, but also those employees in the vicinity. PPE will be in accordance with the owner/operator's manual.

On the job site, each tool should be accompanied by:

a. Its container;
b. The operator's instruction & service manuals;
c. The tool inspection record; and
d. Service tools & accessories.

Tools must not be loaded until just before firing and, under no circumstances, are they to be pointed at any person. Hands must be kept clear of the open barrel end. A powder activated tool must never be left unattended – loaded or empty – for safety and security reasons.

Fasteners must not be driven into very hard or brittle materials such as cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick or hollow tile; easily penetrated materials unless these materials are backed by a substance; nor a damaged area caused by an unsatisfactory fastening. Of course, these tools must never be used in an explosive or flammable atmosphere.

Before fastening questionable material, the operator can determine its suitability by using a fastener as a center punch. If the fastener point does not easily penetrate, is not blunted, and does not fracture the material, initial test fastenings will be made in accordance with the manufacturer's instructions.

The tool must be held perpendicular to the work surface and in the event of a misfire, the operator must hold the tool firmly against the work surface and follow, exactly, the manufacturer's instructions.

Tools must be used with the correct shield, guard, or attachments recommended by the manufacturer.

Because the case and load are color coded, it is imperative that the operator can distinguish the colors of brass and nickel as well as gray, brown, green, yellow and red and purple.

Guards will be in place and operable at all times while the tool is in use. The guard will not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding will meet the requirements set forth in ANSI B15.1.

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Ventilation

29 CFR 1926.57 - Ventilation

29 CFR 1910.94 - Ventilation

There may be times in the course of work, such as grinding, cutting, sawing, sanding, etc. that hazardous dusts are released into the atmosphere that exceed the concentrations specified in Table 2 of 29 CFR 1926.55 - Mineral Dusts, listed below:

Table 2 - Mineral Dusts	
Substance	**mppcf[j]**
SILICA:	
Crystalline	250[k]
Quartz. Threshold Limit calculated from the formula[p]	% SiO_2 + 5
Cristobalite	
Amorphous, including natural diatomaceous earth	20
SILICATES (less than 1% crystalline silica)	
Mica	20
Portland cement	50
Soapstone	20
Talc (non-asbestiform)	20
Talc (fibrous), use asbestos limit	--
Graphite (natural)	15
Inert or Nuisance Particulates:[m]	50 (or 15 mg/m^3 whichever is the smaller) of total dust <1% SiO_2
[Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts as indicated by examples in TLV's appendix D]	
Conversion factors	
mppcf × 35.3 = million particles per cubic meter = particles per c.c.	

[j]Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.

[k]The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.

[m]Covers all organic and inorganic particulates not otherwise regulated. Same as Particulates Not Otherwise Regulated.

[p]This standard applies to any operations or sectors for which the respirable crystalline silica standard, 1926.1153, is stayed or otherwise is not in effect.

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Below these threshold limits, no action is required; however, employees may wear dust masks for personal comfort.

Note: OSHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by OSHA standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of 29 CFR 1910.134 Appendix D.

As always, engineering controls are preferred to personal protective equipment to deal with job site hazards. Therefore, local exhaust ventilation is a preferred method of maintaining atmospheres that have dust levels below the concentrations noted in the Mineral Dusts Table, above.

Local exhaust ventilation must be designed so that they prevent dispersions of dust in concentrations causing harmful exposure and that dusts are not drawn through the work area of employees.

The dust collected by an exhaust or ventilating system will be discharged to the outside atmosphere.

If concentrations are so great that a dust separator is used, the dust and refuse will be disposed of in such a manner as to not harm employees. The exhaust will still be discharged to the outside atmosphere.

Of course, if the above ventilation procedures do not reduce the dust levels to acceptable limits, respirators will be used.

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29 CFR 1910.251 - Definitions
29 CFR 1910.252 - General requirements
29 CFR 1910.253 - Oxygen-fuel gas welding and cutting
29 CFR 1910.254 - Arc welding and cutting
29 CFR 1926.350 - Gas welding and cutting
29 CFR 1926.351 - Arc welding and cutting
29 CFR 1926.352 - Fire prevention
29 CFR 1926.353 - Ventilation and protection in welding, cutting, and heating
29 CFR 1926.354 - Welding, cutting, and heating in way of preservative coatings
29 CFR 1926.1126 - Chromium (VI)
29 CFR - Table Z-1 – Limits for Air Contaminants

Employees assigned to operate arc welding, cutting, and oxygen-fuel welding and/or brazing equipment, **and their supervisors**, must be properly trained and instructed in the operation of such equipment. Proper PPE will be worn by all welders.

Before welding, cutting, or brazing, the supervisor or competent person will inspect the area with emphasis on fire prevention and authorize welding or cutting using our Hot Work Permit noting special precautions that must be taken.

An appropriate fire extinguisher and first aid equipment will be readily available for immediate use.

Employees in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems will be training and judged competent by Matt Landers, our safety director, before being left in charge.

Inside of buildings, cylinders will be stored in a well-protected, well-ventilated, dry location, at least 20 feet (6.1 m) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage places will be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders will not be kept in unventilated enclosures such as lockers and cupboards.

Compressed Gas Cylinders

Compressed gas cylinders are used on many job sites – the most common being oxygen and acetylene for welding.

Failure to follow basic safety procedures could result in serious injuries such as:

a. Flash burn – due to explosion.
b. Fragment impalement – due to explosion.
c. Compression of the foot – due to mishandling of tanks.
d. Inhalation of hazardous gases – due to leakage.

Basic Safety Procedures Gas Cylinder Use:

a. Cylinders must remain upright and chained to a substantial support or cart when in use.
b. Wear appropriate personal protective equipment for the job – such as steel toed shoes, apron, goggles, gloves, helmet, etc.
c. Read and understand the SDS for the gas being used and know the location of the SDS in case of an emergency.

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d. Have appropriate fire extinguisher readily available.
e. To release the gas, open the cylinder valve slowly – standing away from the face and back of the gauge – and leave the opening tools in place (on the valve stem) for quick shut-off in the event of an emergency.
f. Ensure cylinder valves, regulators, couplings, and hoses are free of oil and grease and ensure all connections are tight.
g. When using oxygen-fuel systems, use flashback arrestors and reverse-flow check valves to prevent flashback.
h. Keep cylinders away from open flames and sources of heat.
i. Do not alter or attempt to repair safety devices or valves.
j. Remove the regulators when:
    1. moving cylinders.
    2. work is completed, and/or
    2. cylinders are empty.
k. Regulators and gauges will be inspected daily.
l. Oxygen cylinders and fittings must be kept away from oil or grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus must be kept free from oil or greasy substances and must not be handled with oily hands or gloves. Oxygen must not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.
m. Hoses, cables, and other equipment will be kept clear of passageways, ladders and stairs.
n. When cylinders are hoisted, they will be secured on a cradle, sling board, or pallet. They will not be hoisted or transported by means of magnets or choker slings.

Compressed Gas Cylinders Will:

a. Have valve protectors in place when not in use or connected for use.
b. Be legibly marked to identify the gas contained therein.
c. Have the valves closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.
d. Be stored in areas away from intense heat, electric arcs, and high temperature lines.
e. Be secured upright (chained in portable dolly), in storage or transportation, to prevent tipping, falling, rolling, and damage from passing or falling objects. Oxygen cylinders must be kept 20 feet from any flammable gases or petroleum products and away from stairs.
f. Be marked "EMPTY" when appropriate.
g. Be removed from service if the regulators or gauges are defective.
h. Be used only for the purpose for which they are designed -- for example, cylinders will not be used as rollers or supports.
i. Fuel gas and oxygen manifolds will bear the name of the substance they contain in letters that are at least 1-inch high and they will be either painted on the manifold or on a sign permanently attached to it.

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j. Fuel gas hose and oxygen hose will be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel gas hoses will not be used interchangeable. A single hose having more than one gas passage will not be used.

Note: All hose in use carrying any gas or substance which may ignite or enter into combustion, or be in any way harmful to employees, will be inspected at the beginning of each working shift. Defective hose will be removed from service.

Transportation of Compressed Gas Cylinders:

a. Compressed gas cylinders must be transported in a vertical secured position using a cylinder basket or cart.
b. Regulators should be removed, and cylinders capped before movement.
c. Cylinders may never be rolled. Cylinders should not be dropped or permitted to strike violently.
d. Valve protection caps will be in place and secured for cylinder storage, moving and transporting.
e. Protective caps are not to be used to lift cylinders.
f. Cylinders will be moved by tilting and rolling them on their bottom edges. They will not be intentionally dropped, struck, or permitted to strike each other violently.

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

Arc Welding

Persons performing arc welding and cutting must be properly trained and qualified to operate such equipment and, will be familiar with the requirements of 29 CFR 1910.252 (a), (b), and (c).

If you're performing gas shielded arc welding, you must be familiar with *Recommended Safe Practices for Gas-Shielded Arc Welding*, A6.1-1966, American Welding Society, as well as **29 CFR 1910.252.**

Electric welders will be inspected daily before use with emphasis on the cables. All splicing of cables must maintain the insulated protection with no exposed metal parts. Cables in need of repair will not be used.

Confined Spaces

Cylinders are never allowed in confined spaces- when welding or cutting in a confined space, the tanks must remain outside the confined space.

The competent person will ensure that ventilation within a confined space is adequate to negate the possibility of a respiratory or explosion hazard.

Appropriate ventilation must be assured, portable equipment must be secured to prevent movement, if appropriate, and a rescue plan should be prepared.

If the rescue plan involves pulling the person out, attachment of the lifelines should be so the person’s body does not jam in the exit and prevent his extraction.

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If arc welding is suspended for a substantial period of time, the electrodes must be removed to prevent accidental contact and the machine must be disconnected from the power source.

If gas cylinder work is suspended, the torch valves must be closed and the fuel-gas and oxygen supply must be positively shut off or disconnected outside the confined space.

After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other workers.

Fire Watch

A fire watch will be assigned when there is potential a fire might develop. Of course, any person assigned to fire watch must have received training in the specific fire extinguishing equipment being used. When welding, cutting, or brazing an object near a fire hazard that is not readily movable, the fire hazard will be removed. If any fire hazards remain, shields will be used to confine the sparks, heat, and slag. If the provisions of this paragraph cannot be met, welding and/or cutting **may not** take place. In fact, as a company policy, if welding cannot be conducted safely, it may not be conducted.

Fire watchers are required in all locations where other than a minor fire might develop and any of the below conditions exist:

a. Appreciable amounts of combustible materials closer than 35 feet to point of operation.
b. Appreciable combustibles are 35 feet or more away but are easily ignited by sparks.
c. Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
d. Combustible materials are adjacent to the opposite side of metal partitions, ceilings, or roofs that are likely to be ignited by conduction or radiation.

The fire watch must be maintained at least one-half hour after welding or cutting operations have ceased to detect, and extinguish, possible smoldering fires.

Assigned fire watchers must have received training in fire extinguishers, be familiar with the facilities in which they are working and know the procedures for sounding an alarm in the event of a fire.

When performing operations capable of producing heat at chemical plants, refineries, or other facilities which have a higher degree of hazard than normal work sites, a hot work permit is generally required. Included in these types of operations are burning, cutting, heating, and welding.

Located with our Hot Work Permit are fire safety instructions that must be read and understood by the persons identified on the permit.

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Toxic Metals

Welding, cutting, and heating of metals of toxic significance (lead, zinc, cadmium, mercury, beryllium, or exotic metals or paints) in enclosed spaces will require either general mechanical ventilation of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits **or** local exhaust ventilation consisting of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system will be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

This would include inert-gas metal-arc welding performed on stainless steel to protect against dangerous concentrations of nitrogen dioxide.

When performing welding operations on stainless steel and there is exposure to airborne chromium (VI) above its action level of 2.5 micrograms per cubic meter of air (2.5 µg/m^3) calculated as an 8-hour time-weighted average (TWA), the provisions of **29 CFR 1926.1126** must be adhered to. The PEL is 5 µg/m^3. If air monitoring, as described in 29 CFR 1926.1126 is below .5 µg/m^3, the provisions of this standard do not apply.

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Section III
Specific Compliance Programs

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Bloodborne Pathogens - Exposure Control Plan

29 CFR 1910.1030 - Bloodborne Pathogens

Note: Per CPL 2-2.69, *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens*, the bloodborne pathogens standard does not apply to the construction industry. OSHA has not, however, stated that the construction industry is free from the hazards of bloodborne pathogens. Exposure to bloodborne pathogens would fall under Section 5(a)(1) of the OSH Act which states that "each employer will furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

Providing first aid or other medical assistance is not the primary job assignment of our designated first aid providers. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the job site where the incident occurred.

Recordkeeping: all work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials (OPIM) are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.
b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Note: Our first aid kits do not contain sharps or needles. However, a contaminated sharp, such as a broken pair of glasses, may trigger the above.

Policy Statement

This Exposure Control Plan has been developed to eliminate or minimize the risk of exposure to bloodborne pathogens and other potentially infectious materials. This Plan presents methods and procedures to eliminate and/or minimize the hazards associated with occupational exposure to bloodborne pathogens or other infectious materials.

As a matter of policy, universal precautions will be used.

Additional components of this Plan include exposure determinations by job classification, standard operating procedures to eliminate or reduce the likelihood of disease transmission, the methods of disease transmission, definitions of terms, post exposure procedures and follow-up, training documentation, and recordkeeping.

Compliance with this Plan not only fulfills the requirements of the Occupational Safety and Health Administration, more importantly, it fulfills our desire to maintain a safe working environment and safeguard the health of our employees.

All affected employees should feel free to review this Plan at any time and are encouraged to consult with Matt Landers, our Exposure Control Plan Administrator, to resolve any issues affecting its implementation. Our Plan is to be made available to the Assistant Secretary of Labor for Occupational Safety and Health or designated representative.

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Definitions

All employees should know the "language" of this plan. Because some of the words and/or terms are not used in everyday life, each person must be aware of the definitions so that we are all "reading off the same page."

Below are OSHA definitions:

Assistant Secretary means Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Clinical Laboratory means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

Contaminated means the presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination means the use of a physical or chemical procedure to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls means controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the work area.

Exposure Incident means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Hand-Washing Facilities means a facility providing an adequate supply of running potable water, soap, and single use towels or hot air-drying machines.

Licensed Healthcare Professional means a person whose legally permitted scope of practice allows him or her to independently perform the activities required by 29 CFR 1910.1030(f), *Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up*.

HBV means hepatitis B virus.

HIV means human immunodeficiency virus.

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Needleless Systems means a device that does not use needles for:

a. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established,
b. The administration of medication or fluids, or
c. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials:

a. The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, anybody fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
b. Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
c. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions, and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parental means piercing mucous membranes or the skin barrier through such events as needle-sticks, human bites, cuts, and abrasions.

Personal Protective Equipment means specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Production Facility means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.

Sharps with Engineered Sharps Injury Protection means a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

Source Individual means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

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Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions means is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

Exposure Control Plan

This Exposure Control Plan is provided for all personnel who, as a result of the performance of their duties, would have reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials.

This Plan will be reviewed and updated annually and whenever necessary as new or modified tasks and procedures are introduced which affect occupational exposure to bloodborne pathogens or other potentially infectious materials. The review and update of this plan will:

a. Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.
b. Annually document consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

First aid providers are employees responsible for direct trauma victim care, who are potentially exposed to injuries for contaminated sharps, will be asked for input on the identification, evaluation, and selection of effective engineering and work practice controls.

This Exposure Control Plan, with a copy of 29 CFR 1910.1030, *Bloodborne Pathogens*, will be made accessible to all employees as well as the Assistant Secretary and the Director (see definitions) who may examine and copy this plan.

Exposure Determination

Three (3) lists will be prepared and they will be maintained at the end of this exposure control plan for bloodborne pathogens & other infectious material, located **here.**

List I: A list of all job classifications in which all employees have occupational exposure.

List II: A list of job classifications in which some employees have occupational exposure.

List III: A list of all tasks and procedures, or groups of closely related tasks and procedures, in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

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Methods of Compliance

Universal precautions will be used. We will treat all trauma victims' blood, bodily fluids, and other potentially infectious materials as if they are known to be infectious. Unfortunately, there is no immediate, practical way to determine if HIV, HBV, and other bloodborne pathogens are present so, to be safe, we will assume they are. Traditionally, isolation of infectious materials has been diagnosis driven. This meant that if a person were diagnosed to have HIV or HBV infection, for example, then isolation precautions would be taken. Because the infection status of each trauma victim cannot be immediately known, it makes sense to treat all trauma victims and their body fluids as if they were infected.

The precautions to take depend on the procedures being performed. For example, if one's hands will be in contact with body substances, disposable gloves will be worn. If there is risk of one's eyes being splashed with body fluids, eye protection will be worn.

An impermeable barrier must be placed between yourself and the potentially infectious bodily fluids. Overkill is not necessary. Cleaning up a minor spill on a countertop does not require a mask, eye protection, and plastic apron. It does, however, require disposable gloves.

All employees will strictly adhere to the below engineering and work practice controls to eliminate or reduce the possibility of occupational exposure to bloodborne pathogens or other potentially infectious materials. Specific controls and procedures, noted below, will be used to eliminate or minimize employee exposure. If occupational exposure is:

Eating, Drinking, and Smoking:

There will be no eating, drinking, smoking, applying cosmetics, lip balm, or handling contact lenses in areas where there is a likelihood of occupational exposure to bloodborne pathogens or other potentially infectious materials.

Furthermore, food and drink will not be kept in refrigerators, freezers, shelves, cabinets, on countertops, or benches where blood or other potentially infectious materials are present.

Handwashing Equipment and Procedures:

Hand-washing facilities are provided which are readily accessible to all employees.

Employees will wash their hands and any other skin area exposed to blood or other potentially infectious materials with soap and water immediately or as soon as feasible:

a. After removal of gloves or other personal protective equipment.
b. Following contact with blood or other potentially infectious materials.

Particular attention will be given to fingernails and between fingers and rings under which infectious material may lodge. Furthermore, one should be aware that rings and jewelry are a good hiding place for bloodborne pathogens and other potentially infectious materials.

Examples of situations where handwashing is appropriate:

a. Before and after examining any trauma victim.
b. After handling any soiled waste or other materials.
c. After handling any chemicals or used equipment.

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If for some reason hand-washing facilities are not functioning, appropriate antiseptic hand cleaner and clean cloth/paper towels (antiseptic towelettes) will be provided and used. If antiseptic hand cleaner and clean cloth/paper towels are used, hands will be washed with soap and water as soon as feasible.

Contaminated needs and other Contaminated Sharps:

Contaminated needles will not be sheared or broken.

Furthermore, all contaminated needles and other contaminated sharps will not be bent, recapped, or removed unless:

a. It can be demonstrated that no alternative is feasible or that it is required by a specific medical procedure.
b. Recapping or needle removal may be accomplished through the use of a mechanical device or a one-handed method.

Contaminated **reusable** sharps will be placed in appropriate containers immediately or as soon as possible after use until properly reprocessed. These containers will:

a. Be puncture resistant.
b. Be leak proof on the sides and bottom.
c. Have warning labels affixed to containers potentially infectious material and contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels will be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

Reusable sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

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Contaminated **non-reusable** sharps will be discarded immediately or as soon as feasible and placed in containers that:

a. Are closable
b. Are puncture resistant
c. Are leak proof on sides and bottom
d. Have warning labels affixed that contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels will be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

Contaminated **non-reusable** sharps will not be stored or processed in such a manner that requires employees to reach by hand into the containers where these sharps have been placed.

During use, containers for contaminated sharps must be:

a. Easily accessible to the employees of LNE Electric.
b. Located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found.
c. Maintained upright throughout use.
d. Replaced routinely and not be allowed to overfill.

If leakage is possible when removing a container of contaminated sharps, it will be placed in a second container with the following container requirements:

a. It will be closable,
b. It will be constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping, and
c. Colored coded red or labeled as noted above.

Reusable containers will not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous (introduced through the skin such as a cut) injury.

Other Regulated Waste – Containment:

The provisions that apply to contaminated sharps, above, apply to other regulated waste.

Disposal of Contaminated Sharps & Other Regulated Waste:

The actual disposal of all regulated waste will be in compliance with applicable state laws.

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Specimens of Potentially Infectious Materials:

Specimens of blood and potentially infectious materials will be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.

Splashing, Spraying or Potentially Infectious Materials:

All procedures involving blood or other potentially infectious materials will be performed in such a manner as to minimize splashing, spraying, spattering, and the generation of droplets of these substances.

Mouth Pipetting:

Mouth pipetting and mouth suction of blood or other potentially infectious materials is prohibited.

Exposure Control Plan Administrator

Matt Landers, our designated Exposure Control Plan Administrator, will be knowledgeable in all aspects of this Plan as it relates to our operations and be available to answer questions raised by our first aid providers. Matt Landers may call upon professionals in the Medical Arts to field questions that are of technical nature outside of Matt Landers's area of expertise.

Matt Landers will:

a. Ensure this Plan is kept current.
b. Ensure training is provided as required.
c. Maintain all records associated with this plan.

Designated First Aid Provider

Before one may be designated as a first aid provider, he/she must have a valid certificate in first aid training from the U.S. Bureau of Mines, the Red Cross, or equivalent training that can be verified by documentary evidence. No person is to administer any medical assistance for which they are not appropriately trained. It is noted that the rendering of first aid is not the primary job of our designated first aid providers.

Personal Protective Equipment (PPE)

In spite of work practice and engineering controls, there is a requirement for appropriate personal protective equipment to provide an impermeable barrier between potentially infectious materials and the employees work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

Employees will use appropriate personal protective equipment when there is a possibility of occupational exposure to bloodborne pathogens or other potential infectious materials.

Personal protective equipment will be provided in appropriate sizes and at no cost to the employees. Further, maintenance and replacement of personal protective equipment will be provided at no cost to the employee.

Personal protective equipment will be discarded immediately if its ability to function as a barrier is compromised.

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Most importantly, employees must understand that personal protective equipment is useless unless it provides an impermeable barrier between bloodborne pathogens and other potentially infectious materials and the employee's clothes, skin, eyes, mouth, or other mucous membranes.

Personal Protective Equipment is considered appropriate if it prevents potentially infectious materials from reaching work/street clothing or body surface when used under normal conditions.

Disposable Gloves:

Disposable, single use gloves, such as surgical or examination gloves will be worn when it can be reasonably anticipated that the employee may have hand contact with blood or other potentially infectious materials and when handling or touching contaminated items or surfaces. Disposable gloves will always be used when there is a possibility of contact with bloodborne pathogens or other potentially infectious materials.

Disposable gloves will never be washed, decontaminated, or reused.

Disposable gloves will be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or their ability to function as a barrier is compromised.

Should any employee be allergic to the normal gloves provided, an appropriate alternative (such as hypoallergenic and/or powderless gloves) will be provided in the proper size at no cost to the employee.

Utility Gloves:

Utility gloves may be used for general cleanup (not for any trauma victim procedure) when there is anticipated exposure to bloodborne pathogens or other potentially infectious materials. Utility gloves may be decontaminated for re-use if the integrity of the gloves is not compromised. They will be discarded if they are cracked, peeling, torn, punctured, or exhibit signs of deterioration or when their ability to function as a barrier is compromised.

Eye and Respiratory Protection:

Eye (goggles, glasses, face shield, etc.) and respiratory (mask, etc.) protection will be used when it can reasonably be expected that bloodborne pathogens or other potentially infectious materials may splash or spray in or around the eyes, nose, mouth, and general head area of the employee.

Protective Body Clothing:

Protective body clothing such as gowns, aprons, lab coats, etc. will be worn as determined by the professional judgment of the employee in relation to task. The protective body clothing will certainly be worn where there can reasonably be expected exposure to bloodborne pathogens or other potentially infectious materials to the body area.

Laundry:

Personal protective equipment will be cleaned, laundered, and disposed of at no cost to the employee.

Note: In rare and extraordinary circumstances, an employee, in her/his professional judgment, may decline to temporarily and briefly wear personal protective equipment if he/she deems that the equipment would prevent the delivery of health care or would have increased the hazard of occupational exposure to the employee or his/her co-workers. Should this event occur, it will be documented, investigated, and procedures will be developed to prevent a reoccurrence.

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Housekeeping

Housekeeping is an ongoing, never ending procedure which not only enhances our work environment but also eliminates health risk to our personnel. In the area of bloodborne pathogens and other hazardous materials, to ensure proper cleaning, decontamination, sterilization, and disinfecting of surfaces within our work area, cleaning will be accomplished only by employees who have received training in universal precautions and the provisions of this plan. The documented Housekeeping Schedule & Checklist is found at the end of this exposure control plan for bloodborne pathogens & other infectious material. This Schedule will be adhered to following an incident that results in the potential exposure to bloodborne pathogens or other potentially infectious materials.

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

Hepatitis B Epidemiology

Hepatitis B (serum hepatitis) routes of infection include parenteral, oral, or direct contact. The virus can also spread by contact with the respiratory tract. Its sources include contaminated needles and surgical instruments as well as contaminated blood products. Hepatitis B virus has also been found in urine. Further, the hepatitis B virus can live for up to seven (7) days on a dry surface and can be easily be transmitted by a single needle stick. Its incubation period is quite lengthy generally between 45 and 180 days. It affects all age groups.

Recovery from hepatitis B does provide immunity. Generally, one can expect a complete recovery from viral hepatitis; however, it is potentially fatal depending on many factors including the virulence (aggressiveness) of the virus, prior hepatic damage, and natural barriers to damage and disease of the liver. It is possible for viral hepatitis to lead to fulminating viral hepatitis and sub-acute fatal viral hepatitis both of which are fatal. Onset symptoms may include headache, elevated temperature, chills, nausea, dyspepsia, anorexia, general malaise, and tenderness over the liver.

These types of symptoms will last about one (1) week, and then subside, and jaundice will occur. Jaundice is caused by damaged liver cells. The convalescent stage begins with the disappearance of the jaundice and may last several months. Recovery is expected in six (6) months.

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Risk of Exposure

Per the Department of Human Services of the Center for Disease Control, below is the risk of infection after occupational exposure:

HBV:

First aid providers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection. For an unvaccinated person, the risk from a single needle-stick or cut exposure to HBV-infected blood ranges from 6-30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. In individuals who are both hepatitis B surface antigen (HBsAG) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.

HCV:

Based on limited studies, the risk for infection after a needle-stick or cut exposure to HCV-infected blood is approximately 1.8%. The risk following a blood splash is unknown, but is believed to be very small; however, HCV infection from such an exposure has been reported.

HIV:

The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needle-stick/cut exposures do not lead to infection.

The risk after exposure of the eye, nose, or mouth to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).

The risk after exposure of the skin to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no documented cases of HIV transmission due to an exposure involving a small amount of blood on intact skin (a few drops of blood on skin for a short period of time). The risk may be higher if the skin is damaged (for example, by a recent cut) or the contact involves a large area of skin or is prolonged (for example, being covered in blood for hours).

All employees with occupational exposure are encouraged to accept the hepatitis B vaccination.

Hepatitis B Vaccination

The hepatitis B vaccination series will be provided, at no cost, to all unvaccinated first aid providers as soon as possible (within 24 hours of initial exposure). All exposed first aid provider employees are encouraged to take this vaccination series unless they have previously received the complete hepatitis B vaccination series; antibody testing has revealed that the employee is immune; or the vaccine is contraindicated (not recommended) for medical reasons. Post-exposure evaluation, prophylaxis (prevention of or protection from disease), and follow-up will be provided at no cost to the employee.

The Hepatitis B vaccination will be performed under the supervision of a licensed physician or other licensed healthcare professional.

All laboratory tests will be conducted by an accredited laboratory at no cost to the employee.

Should routine booster dose(s) of hepatitis B vaccine (as recommended by the U.S. Public Health Service at a future date) be required, they will be provided at no cost as long as the employee remains a first aid provider.

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An employee may decline the Hepatitis B vaccination and this declination will not reflect unfavorably upon him/her; however, this declination must be in writing. See the Hepatitis B Declination Form.

It is important to note that if a first aid provider initially declines the hepatitis B vaccination series, he/she may decide at a later date to accept the vaccination series and it will be provided at no cost assuming he/she is still occupationally exposed to bloodborne pathogens or other potentially infectious materials.

Sharps Injury Log

A Sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

The sharps injury log will contain:

a. The type and brand of device involved in the incident.
b. The department or work area where the exposure incident occurred.
c. An explanation of how the incident occurred.

The sharps injury log will be maintained for the period of five years.

First Aid Provider Input

As a matter of policy, all first aid providers who are responsible for first aid delivery as an additional job are encouraged to suggest methods to improve our engineering and job site controls. This input may be made verbally to Matt Landers at any time. Additionally, during the annual refresher training, suggestions will be solicited.

Plan Review

This plan will be reviewed, and if necessary, updated annually to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. As new medical devices are developed which reduce employee exposure, they will be introduced into our practice. A review of the “Sharps Log” will help identify problem areas and/or ineffective devices which may need replacement.

Post-Exposure Evaluation and Follow-Up

The information that has preceded *Post-Exposure Evaluation and Follow-up* has dealt with the methods to restrict occupational exposure to bloodborne pathogens and other infectious materials. Post-exposure evaluation and follow-up deals with the steps to take immediately following a potential exposure incident and the steps that will be taken over time to protect our employees from further health risk.

All incidents involving exposure to blood or other potentially infectious materials will be reported to Matt Landers, in writing, before the end of the shift in which the incident occurred using the Exposure Incident Report, located at the end of this exposure control plan for bloodborne pathogens & other infectious material. This Report will be prepared regardless of whether or not there has been an "Exposure Incident" as defined in this Plan and in 29 CFR 1910.1030. A separate Exposure Incident Report will be completed for each employee who was occupationally exposed.

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Information in this Report will include:

a. The date and time the incident occurred.
b. A brief description of the events leading up to the exposure (what happened).
c. The name of the individual exposed.
d. The route of exposure.
e. “Source individual” and “exposed individual” information, including the acceptance or rejection of hepatitis B vaccination series.
f. A determination of whether or not an actual "exposure incident" occurred. Refer to Definitions in this Plan or 29 CFR 1910.1030.

Matt Landers or his authorized representative will review the Exposure Incident Report and determine if methods or procedures may be altered to prevent a reoccurrence of the incident.

Further, an occupational bloodborne pathogens exposure incident which results in the recommendation for hepatitis B vaccination would be recorded on OSHA Form 300 as an injury. See Recordkeeping.

All unvaccinated employees who have assisted in any situation involving blood will be afforded the opportunity to receive the hepatitis B vaccination series as soon as possible but not later than twenty-four (24) hours after the situation.

A confidential medical evaluation and follow-up will be provided immediately, at no cost, to the employee. The healthcare professional evaluating an employee after an exposure incident will be provided a copy of 29 CFR 1910.1030.

Further, the healthcare professional will be provided a description of the exposed employee's duties as they relate to the exposure incident; documentation of the route(s) of exposure; the circumstances under which the exposure occurred; the results of the source individual's blood testing, if available; and all medical records relevant to the appropriate treatment of the employee including vaccination status which is maintained by our office. See Recordkeeping.

The confidential medical evaluation and follow-up will include:

a. Documentation of the route(s) of exposure.
b. The circumstances under which the exposure incident occurred.
c. The identification and documentation of the source individual, unless it can be established that the identification is not feasible or prohibited by state or local law.
d. The exposed employee's blood will be collected as soon as feasible and tested after consent is obtained.

   Note: If the employee consents to baseline blood collection but does not consent at that time for HIV serologic testing, the sample will be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing will be done as soon as feasible.

e. The source individual's blood will be tested as soon as feasible to determine HBV and HIV infectivity unless it is already known, in which case this procedure is not necessary.

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If consent to test the source individual's blood cannot be obtained the following will occur:

a. It will be established and documented that legally required consent cannot be obtained.
b. When the source individual's consent is not required by law, the source individual's blood will be tested, and the results documented.

The results of the source individual's testing will be made available to the exposed employee and the employee will be informed of applicable laws and the identity and infectious status of the source individual.

The employee will be provided post-exposure prophylaxis, when medically indicated, and counseling.

The employee will be provided with a copy of the healthcare professional's written opinion within 15 days of the completion of the evaluation. The written opinion will be limited to:

a. Whether Hepatitis B vaccination is indicated and if the employee has received such vaccination.
b. An indication that the employee has been informed of the results of the evaluation.
c. An indication that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

All other findings or diagnoses will remain confidential and will not be included in the written report.

Recordkeeping

Complete and accurate medical records will be maintained for each employee with occupational exposure. These records will remain confidential and will not be disclosed or reported, without the employee's express written consent, to any person within or outside the job site, except as required by law.

Medical records will be maintained for at least the duration of employment plus 30 years.

Included in the employee's medical record will be:

a. The employee's name number.
b. A copy of the employee's hepatitis B vaccination status including the date of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
    1. If the employee has declined to receive the hepatitis B vaccination series when appropriate, this declination will be included in the person's medical records.
c. A copy of all results of examinations, medical testing, and follow-up procedures as required following an exposure incident.
d. The employer's copy of the healthcare professional's written opinion following an exposure incident.
e. A copy of all information provided to the healthcare professional following an exposure incident.

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All work-related injuries from needle-sticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.
b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Availability

All records required to be maintained will be made available, upon request, to affected employees, former employees, and their designated representatives, and to the Assistant Secretary and the Director for examination and copying.

Transfer of Medical Records

Should we cease to do business, the successor employer will receive and retain all the above medical records.

Should we cease to do business and there is no successor employer to receive and retain the above medical records, the Safety Program Administrator will notify the affected current employees of their rights of access to records at least 3 months prior to cessation of operations.

Training

All of our first aid providers must have current certificates of first aid and CPR training on file. These records will be maintained by Matt Landers.

Initial training, training at the introduction of a new or altered task affecting exposure to bloodborne pathogens or other potentially hazardous materials, and annual training will be provided by a person knowledgeable in the subject matter contained in this Plan.

Training will be interactive between the instructor and employee. An opportunity to ask questions will be provided. Further, this Plan as well as 29 CFR 1910.1030, *Bloodborne Pathogens*, will be readily available for review.

All training will be documented using the forms found in our **Training Information and Documentation Program.** Training documentation will be maintained for a period of three (3) years from the date on which the training occurred.

Training will include, but not be limited to, the following topics and materials:

a. A complete review of our Exposure Control Plan and its accessibility.
b. An accessible copy of 29 CFR 1910.1030 and an explanation of its contents.
c. A general explanation of the epidemiology and symptoms of bloodborne diseases.
d. An explanation of the modes of transmission of bloodborne pathogens.
e. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
f. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.

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g. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
h. An explanation of the basis for selections of personal protective equipment.
i. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
j. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
k. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
l. Information on the post-exposure evaluation and follow-up that is provided after an exposure incident.
m. An explanation of the color coding required by 29 CFR 1910.1030(g)(1).
n. A request for input from employees in the identification, evaluation, and selection of effective engineering and work practice controls.

Waste Management

Waste management, if necessary, will comply with State EPA standards regarding handling, storage, and shipping of medical wastes.

Summary

The whole thrust of the exposure control plan for bloodborne pathogens & other infectious material Plan is to provide an awareness of the dangers of bloodborne pathogens, provide a means of reducing the possibility of occupational exposure, and, should occupational exposure occur, provide a means of reducing health risk.

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Exposure Determination Form - List I

All job classifications in which all employees have occupational exposure.

1. **First Aid Providers .**
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

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Exposure Determination Form - List II

Job classifications in which some employees have occupational exposure:

1. **None .**
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

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Exposure Determination Form - List III

All tasks and procedures or groups of closely related tasks and procedures in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Job Classification	Tasks
1. _____	_____
	_____
	_____
	_____
2. _____	_____
	_____
	_____
	_____
3. _____	_____
	_____
	_____
	_____
4. _____	_____
	_____
	_____
	_____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

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Housekeeping Schedule & Checklist

Schedule

Following every incident where there is a possibility of the presence of residual bloodborne pathogens or other potentially infectious materials.

Checklist

Only personnel who have had training in our Exposure Control will ensure that all surfaces are decontaminated and that cleaning materials are properly disposed of. Areas to consider include, but are not limited to:

	YES	NA
Floors	☐	☐
Walls	☐	☐
Equipment	☐	☐
Product	☐	☐
Waste Containers	☐	☐
Tools	☐	☐

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dustpan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

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Hepatitis B Declination Form

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

_____ _____

(Witness) **(Employees Signature)**

_____

(Printed Name)

_____

(Date)

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LNE Electric

Sharps Injury Log

Note: A sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

This sharps injury log will be maintained for the period of five years.

_____ _____

(Incident Date) **(Employee SSN)**

Type and brand of device involved in the incident:

_____

Work area where the exposure incident occurred:

_____

Explanation of how the incident occurred:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Matt Landers
Safety Program Administrator

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Annual Exposure Control Plan Review

This Exposure Control Plan was prepared by:

At least annually, this program will be reviewed and, if necessary, updated to reflect innovations in procedures and technological developments that eliminates or reduces exposure to bloodborne pathogens.

As part of the annual review, the below will be considered:

a. Employee Input
b. Sharps Injury Log
c. Exposure Incident Reports
d. Professional Journals

Date Reviewed:	Signature	Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Exposure Incident Report

All Information on this form is to remain CONFIDENTIAL

This form will be completed as soon as feasible after an exposure incident but under NO CIRCUMSTANCES, after the shift on which the incident occurred!

Date: _____ Time: _____

Name of Employee: _____

Route of Exposure: _____

Source Individual's Name: _____

a. Above individual did / did not consent to be tested for HBV or HIV.

b. Testing was done by: _____

Results: _____

Employee was offered & accepted:	**NO**	**YES**	
a. Hepatitis Vaccination Series. **[Date(s)]** **If "NO", written declination was signed.**	☐	☐	_____
b. Post Exposure Evaluation & follow-up.	☐	☐	
c. Employee consents to baseline blood collection.	☐	☐	_____ **(Signature)**

Description of events leading to this exposure incident:

_____
_____
_____
_____

Corrective Measures to Prevent a Reoccurrence:

_____
_____
_____
_____

_____ _____

Matt Landers **(Employee Signature)**

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Confined Spaces in Construction

29 CFR 1926, Subpart AA – Confined Spaces in Construction

This Confined Spaces in Construction Program identifies our requirements for the practices and procedures to protect our employees engaged in construction activities at a worksite with one or more confined spaces.

Note: Our Confined Spaces in Construction Program does not apply to (1) construction work regulated by §1926 subpart P—Excavations. (2) Construction work regulated by §1926 subpart S—Underground Construction, Caissons, Cofferdams and Compressed Air. 3) Construction work regulated by §1926 subpart Y—Diving.

Note: If we are performing work covered by another OSHA standard and that standard addresses a confined space issue, we will comply with both that requirement and the applicable provisions of this Confined Spaces in Construction Program.

Definitions

The following terms are defined for the purposes of this Confined Spaces in Construction Program only.

Acceptable Entry Conditions means the conditions that must exist in a permit space, before an employee may enter that space, to ensure that employees can safely enter into, and safely work within, the space.

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

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

Barrier means a physical obstruction that blocks or limits access.

Blanking *or* **Blinding** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate the hazards.

Confined Space means space that:

a. Is large enough and so configured that an employee can bodily enter it;
b. Has limited or restricted means for entry and exit; and
c. Is not designed for continuous employee occupancy.

Control means the action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.

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

Note: If the controlling contractor owns or manages the property, then it is both a controlling employer and a host employer.

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Double Block and Bleed means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Early-Warning Systems means the method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include but are not limited to: alarms activated by remote sensors; and lookouts with equipment for immediately communicating with the authorized entrants and attendants.

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

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

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

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

Note: An employer cannot avoid the duties of the standard merely by refusing to decide whether its employees will enter a permit space, and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

Entry Permit (Permit) means the written or printed document that is provided by the employer who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in §1926.1206 of this standard.

Entry Rescue means occurs when a rescue service enters a permit space to rescue one or more employees.

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

Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this standard for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

Hazard means a physical hazard or hazardous atmosphere. See definitions below.

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Hazardous Atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

a. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

b. Airborne combustible dust at a concentration that meets or exceeds its LFL;

Note: This concentration may be approximated as a condition in which the combustible dust obscures vision at a distance of 5 feet (1.52 meters) or less.

c. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

d. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart D - Occupational Health and Environmental Control, or in Subpart Z - Toxic and Hazardous Substances, of this part and which could result in employee exposure in excess of its dose or permissible exposure limit;

Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

e. Any other atmospheric condition that is immediately dangerous to life or health.

Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with the Hazard Communication Standard, 29 CFR 1910.1200 of this chapter, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

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

Note: If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, and has transferred to that entity the below information:

Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:

a. The location of each known permit space;

b. The hazards or potential hazards in each space or the reason it is a permit space; and

c. Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.

OSHA will treat the contracted management entity as the host employer for as long as that entity manages the property. Otherwise, OSHA will treat the owner of the property as the host employer. In no case will there be more than one host employer.

Hot Work means operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

Immediately Dangerous to Life or Health (IDLH) means any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.

Note: Some materials—hydrogen fluoride gas and cadmium vapor, for example—may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" after recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

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Inerting means displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

Isolate or **Isolation** means the process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

Limited or Restricted means for Entry or Exit means a condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

Line Breaking means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Lockout means the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lower Flammable Limit or Lower Explosive Limit means the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

Monitor or **Monitoring** means the process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

Non-Entry Rescue means occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.

Non-Permit Confined Space means a confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined in this subpart.

Oxygen Deficient Atmosphere means an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen Enriched Atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Permit Required Confined Space (Permit Space) means a confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) Contains any other recognized serious safety or health hazard.

Permit Required Confined Space Program (Permit Space Program) means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

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Physical Hazard means an existing or potential hazard that can cause death or serious physical damage. Examples include but are not limited to: explosives (as defined by paragraph (n) of §1926.914, definition of “explosive”); mechanical, electrical, hydraulic and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazard also includes chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation).

Prohibited Condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee.

Qualified Person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Representative Permit Space means a mock-up of a confined space that has entrance openings that are similar to, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

Rescue means retrieving, and providing medical assistance to, one or more employees who are in a permit space.

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

Retrieval System means the equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Serious Physical Damage means an impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

Tagout means (1) Placement of a tagout device on a circuit or equipment that has been deenergized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and (2) The employer ensures that (i) tagout provides equivalent protection to lockout, or (ii) that lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.

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

Note: Testing enables us both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

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

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General Requirements

Before beginning work at a worksite, we must ensure that a competent person both identifies all confined spaces in which one or more of our employees that we direct may work **and** identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

If the workplace contains one or more permit spaces (or if we receive notice of a permit space from another contractor) we must:

a. Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space; and

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

b. Inform, in a timely manner and in a manner other than posting, employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

If we identify, or receive notice of, a permit space and do not authorize our employees to work in that space, we must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of 29 CFR 1926, subpart AA, *Confined Spaces in Construction*.

Host Employer Responsibilities

Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:

a. The location of each known permit space;
b. The hazards or potential hazards in each space or the reason it is a permit space; and
c. Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.

Controlling Contractor Responsibilities

Before entry operations begin, the controlling contractor must:

a. Obtain the host employer's information about the permit space hazards and previous entry operations; and
b. Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
   1. The information received from the host employer;
   2. Any additional information the controlling contractor has about the permit spaces; and
   3. The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.

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Entry Employer Responsibilities

Before entry operations begin, each entry employer must:

a. Obtain all of the controlling contractor's information regarding permit space hazards and entry operations; and
b. Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.

The controlling contractor and entry employer(s) must coordinate entry operations when:

a. More than one entity performs permit space entry at the same time; or
b. Permit space entry is performed at the same time that any activities that could foreseeably result in a hazard in the permit space are performed.

After Entry Operations

The controlling contractor must debrief each entity that entered a permit space regarding:

a. The permit space program followed.
b. Any hazards confronted or created in the permit space(s) during entry operations.

The entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations; and

The controlling contractor must apprise the host employer of the information exchanged with the entry entities pursuant to this subparagraph.

Note Unless a host employer or controlling contractor has or will have employees in a confined space, it is not required to enter any confined space to collect the information specified in this paragraph (h).

If we decide that our employees will enter a permit space, we must have a written permit space program that complies with §1926.1204, see below, implemented at the construction site. Our written permit space program must be made available prior to and during entry operations for inspection by our employees and their authorized representatives.

We may use the **alternate procedures**, see below, for entering a permit space only under the conditions below:

Note: If our employees enter a permit space using alternate procedures, we do not have to comply with the requirements of:

§§1926.1204 Permit-required confined space program.
§§1926.1205 Permitting process.
§§1926.1206 Entry permit.
§§1926.1208 Duties of authorized entrants.
§§1926.1209 Duties of attendants.
§§1926.1210 Duties of entry supervisors.
§§1926.1211 Rescue and emergency services.

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Conditions Required to Use Alternate Procedures

a. We can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;
b. We can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely;
c. We develop monitoring and inspection data that supports the demonstrations required by preceding two paragraphs (a & b);
d. If an initial entry of the permit space is necessary to obtain the data required by paragraph preceding paragraph above (3), the entry will be performed in compliance with:

§§1926.1204 Permit-required confined space program.
§§1926.1205 Permitting process.
§§1926.1206 Entry permit.
§§1926.1207 Training.
§§1926.1208 Duties of authorized entrants.
§§1926.1209 Duties of attendants.
§§1926.1210 Duties of entry supervisors.
§§1926.1211 Rescue and emergency services.

e. The above determinations and supporting data required by the above paragraphs are documented and are made available to each employee who enters the permit space under the terms of the alternate procedures or to that employee's authorized representative; and
f. Entry into the permit space using the alternate procedures must be performed following the requirements of 29 CFR 1926.1203(e)(2).

Classification/Reclassification of a Space

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

A space that we have classified as a permit-required confined space may only be **reclassified as a non-permit confined space** when a competent person determines that all of the below applicable requirements have been met:

a. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless we can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;

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b. As the entry employer, we eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, the entry will be performed in compliance with:

§§1926.1204 Permit-required confined space program.
§§1926.1205 Permitting process.
§§1926.1206 Entry permit.
§§1926.1207 Training.
§§1926.1208 Duties of authorized entrants.
§§1926.1209 Duties of attendants.
§§1926.1210 Duties of entry supervisors.
§§1926.1211 Rescue and emergency service

If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated;

Note: Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. These alternate procedures cover permit space entry where it can be demonstrated that forced air ventilation alone will control all hazards in the space.

c. As the entry employer, we must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized representative; and

d. If hazards arise within a permit space that has been reclassified as a non-permit, each employee in the space must exit the space. As the entry employer, we must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of Confined Spaces in Construction standard.

Permit-Required Confined Space Program

As an entry employer, we must:

a. Implement the measures necessary to prevent unauthorized entry;

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

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

1. Specifying acceptable entry conditions;
2. Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces;
3. Isolating the permit space and physical hazard(s) within the space;

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4. Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;

   Note: When we are unable to reduce the atmosphere below 10 percent LFL, we may only enter if we inert the space so as to render the entire atmosphere in the space non-combustible, and we use PPE to address any other atmospheric hazards (such as oxygen deficiency), and we eliminate or isolate all physical hazards in the space.

5. Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space;
6. Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;
7. Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless we can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee; and
8. Eliminating any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover.

d. Provide the following equipment at no cost to each employee, maintain that equipment properly, & ensure that each employee uses that equipment properly:
   1. Testing and monitoring equipment needed to comply with paragraph (e) of this section;
   2. Ventilating equipment needed to obtain acceptable entry conditions;
   3. Communications equipment including any necessary electronic communication equipment for attendants assessing entrants' status in multiple spaces;
   4. Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees;

      Note: The requirements of subpart E [Personal Protective & Life Saving Equipment] & other PPE requirements continue to apply to the use of PPE in a permit space. For example, if employees of our company use respirators, then the respirator requirements in §1926.103 (Respiratory Protection) must be met.

   5. Lighting equipment that meets the minimum illumination requirements in §1926.56, **[Click here** to access Minimum Illumination Intensities in Foot-Candles] that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency;
   6. Barriers and shields for isolation of the space;
   7. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
   8. Rescue and emergency equipment needed to comply with paragraph (9) of this section, except to the extent that the equipment is provided by rescue services; and
   9. Any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces.

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e. When entry operations are conducted, we must evaluate the permit space conditions both before and during operation as follows:
    1. Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry is authorized to begin, except that, if we demonstrate that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), we must:
        i. Perform pre-entry testing to the extent feasible before entry is authorized; and,
        ii. If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that we may use periodic monitoring for monitoring an atmospheric hazard if we can demonstrate that equipment for continuously monitoring that hazard is not commercially available;
        iii. Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.
    2. Continuously monitor atmospheric hazards unless we can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations;
    3. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
    4. Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;
    5. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that we conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and
    6. Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted in accordance with this section.
f. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations:
    1. Attendants may be assigned to more than one permit space provided all the duties of the attendant, see Duties of Attendants, below, can be effectively performed for each permit space.
    2. Attendants may be stationed at any location outside the permit space as long as the duties can be effectively performed for each permit space to which the attendant is assigned.

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g. Designate each person who is to have an active role (such as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the required training. See Training, below.

h. Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue;

i. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions;

j. Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor, when employees of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one employer do not endanger the employees of any other employer;

k. Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

l. Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

   Note: Examples of circumstances requiring the review of the permit space program include, but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

m. Review the permit space program using the canceled permits we retain for at least 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

   Note: We may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Permitting Process

Before entry is authorized, as an entry employer, we must **document** the completion of measures required by paragraph 3 of our **Permit-required confined space program**, above, by preparing an entry permit.

Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

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The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry supervisor must terminate entry and take the following action when any of the following apply:

a. Cancel the entry permit when the entry operations covered by the entry permit have been completed; or
b. Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and
c. Cancel the entry permit when a condition that is not allowed or covered under the entry permit arises in or near the permit space.

The entry employer must retain each canceled entry permit for at least one (1) year to facilitate the required (within 1 year **after** each entry) review of the permit-required confined space program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

Entry Permit:

The entry permit that documents our compliance requirements and authorizes entry to a permit space must identify:

a. The permit space to be entered;
b. The purpose of the entry;
c. The date and the authorized duration of the entry permit;
d. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

   Note: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

e. Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working;
f. Each person, by name, currently serving as an attendant;
g. The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry;
h. The hazards of the permit space to be entered;
i. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

   Note: Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

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j. The acceptable entry conditions;
k. The results of tests and monitoring performed under the provisions of our Permit-required confined space program, above, accompanied by the names or initials of the testers and by an indication of when the tests were performed;
l. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;
m. The communication procedures used by authorized entrants and attendants to maintain contact during the entry;
n. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard;
o. Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety; and
p. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

Training

We will provide training to each employee whose work is regulated by Subpart AA—Confined Spaces in Construction, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

Training required must be provided to each affected employee:

a. In both a language and vocabulary that the employee can understand;
b. Before the employee is first assigned duties under this standard;
c. Before there is a change in assigned duties;
d. Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and
e. Whenever there is any evidence of a deviation from the permit space entry procedures required permit-required confined space program or there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.

We will maintain training records to show that the training required above has been accomplished. The training records must contain each employee's name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

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Duties of Authorized Entrants

As the entry employer, we must ensure that all authorized entrants:

a. Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
b. Properly use equipment as required by permit-required confined space program, above;
c. Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required duties of attendants, below;
d. Alert the attendant whenever:
    1. There is any warning sign or symptom of exposure to a dangerous situation;
    2. The entrant detects a prohibited condition; and
e. Exit from the permit space as quickly as possible whenever:
    1. An order to evacuate is given by the attendant or the entry supervisor;
    2. There is any warning sign or symptom of exposure to a dangerous situation;
    3. The entrant detects a prohibited condition; or
    4. An evacuation alarm is activated.

Duties of Attendants

As the entry employer, we must ensure that each attendant:

a. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
b. Is aware of possible behavioral effects of hazard exposure in authorized entrants;
c. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under entry permit accurately identifies who is in the permit space;
d. Remains outside the permit space during entry operations until relieved by another attendant;

    Note: Once an attendant has been relieved by another attendant, the relieved attendant may enter a permit space to attempt a rescue when our permit space program allows attendant entry for rescue and the attendant has been trained and equipped for rescue operations as required by our rescue and emergency services procedures, below.

e. Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space as quickly as possible;
f. Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
    1. If there is a prohibited condition;
    2. If the behavioral effects of hazard exposure are apparent in an authorized entrant;

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3. If there is a situation outside the space that could endanger the authorized entrants; or
4. If the attendant cannot effectively and safely perform all the duties required under this section;

g. Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
h. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
    1. Warns the unauthorized persons that they must stay away from the permit space;
    2. Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and
    3. Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
i. Performs non-entry rescues as specified by our rescue procedure; and
j. Performs no duties that might interfere with the attendant's primary duty to assess and protect the authorized entrants.

Duties of Entry Supervisors

As the entry employer, we must ensure that each entry supervisor:

a. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
b. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
c. Terminates the entry and cancels or suspends the permit as required by our permitting process;
d. Verifies that rescue services are available and that the means for summoning them are operable, and that we will be notified as soon as the services become unavailable;
e. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and
f. Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

Rescue and Emergency Services

a. When designating our rescue and emergency services per our permit-required confined space program, we must:

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1. Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

   Note: What will be considered timely will vary according to the specific hazards involved in each entry. For example, §1926.103 (Respiratory protection) requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres.

2. Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;
3. Select a rescue team or service from those evaluated that:
   i. Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
   ii. Is equipped for, and proficient in, performing the needed rescue services;
   iii. Agrees to notify us immediately in the event that the rescue service becomes unavailable;
   iv. Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
   v. Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans & practice rescue operations.

b. If our employees have been designated to provide permit space rescue and/or emergency services we must take the following measures and provide all equipment and training at no cost to those employees:
   1. Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE;
   2. Train each affected employee to perform assigned rescue duties. We must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants;
   3. Train each affected employee in basic first aid & cardiopulmonary resuscitation (CPR). We will ensure that at least one member of the rescue team or service holding a current certification in basic first aid & CPR is available;
   4. Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

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c. Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. We must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails. Retrieval systems must meet the following requirements:
    1. Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which we can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if we can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.
    2. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 meters) deep.
    3. Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.
d. If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

Employee Participation

We will consult with affected employees and their authorized representatives on the development and implementation of all aspects of our permit space program.

We will make available to each affected employee and his/her authorized representatives all information required to be developed by the Confined Spaces in Construction standard.

Provision of Documents to Secretary

For each document required to be retained in the Confined Spaces in Construction standard, as the retaining employer, we must make the document available on request to the Secretary of Labor or the Secretary's designee.

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Emergency Phone Numbers

(To be accessible to attendant)

Main Office: 9713928688

Police: 911 [_____]
(If no 911 Service Available)

Fire: 911 [_____]
(If no 911 Service Available)

Ambulance: 911 [_____]
(If no 911 Service Available)

Hospital Name: _____

Emergency Rescue Service
Name: _____
Phone: _____

Matt Landers
Safety Director
Work: 9713928688
Cell: _____

Other:

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

When calling for EMERGENCY RESPONSE, this location is: _____

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Confined Space/Permit Space Evaluation Survey

Name/Description of this space: _____

Location of this space: _____

Person performing this survey: _____

Date of this survey: _____

Section 1 – Use this section to determine if the space is a <u>Confined</u> space.

Yes	☐	No	☐	Is the space large enough and so configured that an employee can enter and perform assigned work?
Yes	☐	No	☐	Does the space have restricted means for entry or exit? Doorways and other portals through which a person can walk are normally not considered restricted means for entry or exit.
Yes	☐	No	☐	Is the space **<u>not</u>** designed for continuous occupancy?

If all three answers above are yes, this is a confined space. Proceed to Section 2.

Section 2 – Use this section to determine if the space is a <u>Permit</u> space.

Yes	☐	No	☐	Does the space contain or have a potential to contain a hazardous atmosphere? Examples: combustible dust, flammable mixtures, or oxygen deficiency that may expose employees to risk of death, incapacitation, or acute illness.
Yes	☐	No	☐	Does the space contain a material that has the potential for engulfing an entrant? Examples: liquids or granular solids.
Yes	☐	No	☐	Does the space have an internal configuration such as inwardly converging walls or a sloping floor that could trap or asphyxiate an entrant?

If any answer is yes, this is a permit space. An entry permit is required for entry.

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Permit-Space Information & Attendant Designation

Confined Space Date: _____

Space Identification: _____

Space Location: _____

Client: _____

1. Reasons the above confined space is designated a Permit-Required Confined Space:

_____

_____

_____

2. Special precautions taken to protect personnel in or around the above space:

_____

_____

_____

3. Specific hazards and experience with the above confined space:

_____

_____

_____

Client Understanding

I, _____, have been provided the above
(Client Representative)

information and understand that permit space entry is allowed only through compliance with a Permit Space Program meeting the requirements of 29 CFR 1926.1204

In the event our employees and your company's employees are working near or in the same Permit-Required Confined Space, the below listed person is designated as the one and only Senior Attendant. The person, listed below, will have authority over other Attendants.

_____
(Designated Senior Attendant)

_____ _____
(Client Representative Signature/Title) **(Date)**

_____ _____
Matt Landers **(Date)**

Safety Director

[A copy of this form will be kept at the job site during all operations.]

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Entry Roster

Confined Space Date: _____

Space Identification: _____

Space Location: _____

Client: _____

Authorized Entrant	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT

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Entry Permit

Permit-Required Confined Space

Note: This Entry Permit must be used with the attached Pre-Entry Checklist. Additional pages may be added as necessary.

PERMIT VALID FOR _____ HOURS

CONFINED SPACE-HAZARDOUS AREA:

CONFINED SPACE IDENTIFICATION: _____ START DATE: _____

SPACE LOCATION: _____ TIME: _____

PURPOSE OF ENTRY: _____

SUPERVISOR(S) in charge of crew:

_____

_____

AUTHORIZED ATTENDANTS:

_____

_____

_____

_____

ATMOSPHERE (GAS) TESTER'S SIGNATURE & INITIALS: _____ _____

ATMOSPHERE TESTING EQUIPMENT USED:

_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)

_____ **(Signature of Entry Supervisor/Date)**

_____ **(Signature of Program Administrator/Date)**

REVIEWED BY: (Confined Space Operations Personnel)

Note: The below listed persons, or their representative, have had the opportunity to observe the pre-entry atmospheric testing as well as any periodic testing that may be deemed necessary for employee safety.

_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)

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Pre-Entry Checklist

This checklist is an integral part of our Permit System and MUST be maintained with the Entry Permit.

All items on the Pre-Entry Checklist must be completed before entry, for items that do not apply enter N/A.

Initial Atmospheric Check (before ventilation)

Date:_____ Time: _____		**Acceptable Parameters**	**Tester's Initials**
Oxygen: _____% _____%		**>19.5% <23.5%**	**_____**
Flammable Gases & Vapors Present:			
Name			
1. _____	**_____% LEL**	**<10.0%**	**_____**
2. _____	**_____% LEL**	**<10.0%**	**_____**
3. _____	**_____% LEL**	**<10.0%**	**_____**
Potential Toxic Air Contaminants:			
Name			
1. _____	**_____ PPM**	**<_____ PPM**	**_____**
2. _____	**_____ PPM**	**<_____ PPM**	**_____**
3. _____	**_____ PPM**	**<_____ PPM**	**_____**

Note: mg/m^3_may be substituted for PPM. For further reference see 1926.57(f)-(i)

Method of Isolation (atmospheric conditions): _____

_____

Means of Ventilation (to control atmospheric conditions): _____

_____

Atmospheric Check (after ventilation & isolation and immediately prior to initial entry)

Time: _____	**Acceptable Parameters**	**Tester's Initials**
Oxygen: _____% _____%	**>19.5% <23.5%**	**_____**
Flammable Gases & Vapors Present:		
Name		
1. _____	**_____% LEL**	**<10.0%**	**_____**
2. _____	**_____% LEL**	**<10.0%**	**_____**
3. _____	**_____% LEL**	**<10.0%**	**_____**
Potential Toxic Air Contaminants:			
Name			
1. _____	**_____ PPM**	**<_____ PPM**	**_____**
2. _____	**_____ PPM**	**<_____ PPM**	**_____**
3. _____	**_____ PPM**	**<_____ PPM**	**_____**

Note: mg/m^3_may be substituted for PPM. For further reference see 1926.57(f)-(i)

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Other Hazards:

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)	(Engineering controls to control or eliminate the hazard to the extent feasible.)
(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)	(Engineering controls to control or eliminate the hazard to the extent feasible.)
(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)	(Engineering controls to control or eliminate the hazard to the extent feasible.)
(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)	(Engineering controls to control or eliminate the hazard to the extent feasible.)
(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)	(Engineering controls to control or eliminate the hazard to the extent feasible.)

HAZARDS NOT COMPLETELY ELIMINATED BY ENGINEERING CONTROLS AND SAFETY GEAR REQUIRED (i.e., respirators (specific type), special boots, gloves, suits, eye protection, etc.):

(HAZARD)	(SAFETY GEAR)
(HAZARD)	(SAFETY GEAR)
(HAZARD)	(SAFETY GEAR)

COMMUNICATIONS PROCEDURES:

Note: Acceptable, non-electrical, suggestions include, but are not limited to, predetermined rapping sounds, tugs on a rope or line, air horn signals, voice communications

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BELOW LISTED ITEMS MUST BE COMPLETED AND REVIEWED PRIOR TO ENTRY:

Note: For items that do not apply, enter N/A.

REQUIREMENT COMPLETED	DATE	TIME	REQUIREMENT COMPLETED	DATE	TIME
Lock Out/De-energize/Try Out	_____	_____	Full Body Harness w/"D" ring	____	____
Lines Broken/Capped/blanked	_____	_____	Emergency Escape Retrieval	____	____
Purge-Flush & Vent	_____	_____	Equipment		
Ventilation	_____	_____	Lifelines	____	____
Secure Area (Post & Flag)	_____	_____	Fire Extinguishers	____	____
Breathing Apparatus	_____	_____	Lighting (Explosion Proof)	____	____
Resuscitator-Inhalator	_____	_____	Protective Clothing	____	____
Standby Safety Personnel	_____	_____	Respirator(s) (Air Purifying)	____	____
Hoisting Equipment	_____	_____	Direct reading gas monitor	____	____
All electric equipment listed	_____	_____	tested		
Class I, Division I, Group D			Non-Sparking Tools	____	____
SCBA's for entry & standby	_____	_____	Powered Communications	____	____
Other: _____	_____	_____	Burning & Welding Permit	____	____
Other: _____	_____	_____	Other: _____	____	____

EMERGENCY AND RESCUE PROCEDURES

	YES	NO	N/A
Rescue Procedures will be implemented by Company Employees.	☐	☐	☐
Company Rescue Personnel have had training in:			
a. Use of Personal Protective Equipment.	☐	☐	☐
b. Use of Rescue Equipment.	☐	☐	☐
c. Practiced simulated permit space rescue within the past 12 months for a space representative of the space for which this permit is issued.	☐	☐	☐
Each member of the Rescue Team has had training in basic First Aid and cardiopulmonary resuscitation (CPR) and at least one (1) member is currently certified.			
NAME OF CERTIFIED PERSON (CPR): _____			
NAME OF CERTIFIED PERSON (1st AID): _____			
Appropriate Safety Data Sheets are at the job site.	☐	☐	☐
The retrieval line is affixed to the entrants and a fixed point outside the space or a mechanical device should the space be a vertical type more than five (5) feet deep.	☐	☐	☐
All entrants will wear a chest or full body harness with a retrieval line attached at the center of the entrant's back neat shoulder level, or above the entrant's head.	☐	☐	☐
Entrants will wear wristlets, in lieu of the above, should they create a lesser danger to the entrants.	☐	☐	☐
Rescue procedures will be implemented by a rescue service consisting of ☐ persons who are not employees.	☐	☐	
This rescue service has been provided with:			
a. information on all hazards or potential hazards they may confront.	☐	☐	☐
b. access to all permit spaces from which rescue may be necessary to enable the rescue service to develop appropriate rescue plans and practice rescue procedures.	☐	☐	☐

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SPECIFIC RESCUE PLAN FOR AN EMERGENCY IN THIS CONFINED SPACE:

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Record of Continuous Monitoring

[The results of continuous monitoring, if applicable, are to be recorded below every two (2) hours.]

TESTS TO BE TAKEN	Permissible Entry Level	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TESTER'S INITIALS	DATE
PERCENT OF OXYGEN	**19.5 to 23.5%**	____/____	____/____	____/____	____/____	_____	_____
LOWER EXPLOSIVE LIMIT	**Under 10%**	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____
_____	*_____ **_____	____/____	____/____	____/____	____/____	_____	_____

***8 Hour Time Weighted Average: Employee can work in area 8 hours (longer with appropriate protection).**

****Short term exposure limit: Employee can work in area up to 15 minutes.**

This six (6) page Entry Permit and Pre-Entry Checklist as been prepared by the Entry Supervisor and reviewed by all personnel involved in this Permit-Required Confined Space Entry Operation.

Entry Supervisor: _____
(Name)

Entry Supervisor: _____ _____
(Signature) **(Date)**

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Cranes and Derricks in Construction

29 CFR 1926.1400 - Scope
29 CFR 1926.1401 - Definitions
29 CFR 1926.1402 - Ground conditions
29 CFR 1926.1403 - Assembly/Disassembly – selection of manufacturer or employer procedures
29 CFR 1926.1404 - Assembly/Disassembly - general requirements
29 CFR 1926.1405 - Disassembly - additional requirements for dismantling of booms and jibs
29 CFR 1926.1406 - Assembly/Disassembly - employer procedures - general requirements
29 CFR 1926.1407 - Power line safety (up to 350 kV) - assembly and disassembly
29 CFR 1926.1408 - Power line safety (up to 350 kV) - equipment operations
29 CFR 1926.1409 - Power line safety (over 350 kV)
29 CFR 1926.1410 - Power line safety (all voltages) - equipment operations closer than the Table A zone
29 CFR 1926.1411 - Power line safety - while traveling
29 CFR 1926.1412 - Inspections
29 CFR 1926.1413 - Wire rope - inspection
29 CFR 1926.1414 - Wire rope - selection and installation criteria
29 CFR 1926.1415 - Safety devices
29 CFR 1926.1416 - Operational aids
29 CFR 1926.1417 - Operation
29 CFR 1926.1418 - Authority to stop operation
29 CFR 1926.1419 - Signals - general requirements
29 CFR 1926.1420 - Signals - radio, telephone or other electronic transmission of signals
29 CFR 1926.1421 - Signals - voice signals – additional requirements
29 CFR 1926.1422 - Signals - hand signal chart
29 CFR 1926.1423 - Fall protection
29 CFR 1926.1424 - Work area control
29 CFR 1926.1425 - Keeping clear of the load
29 CFR 1926.1426 - Free fall and controlled load lowering
29 CFR 1926.1427 - Operator qualification and certification
29 CFR 1926.1428 - Signal person qualifications
29 CFR 1926.1429 - Qualifications of maintenance & repair employees
29 CFR 1926.1430 - Training
29 CFR 1926.1431 - Hoisting personnel
29 CFR 1926.1432 - Multiple-crane/derrick lifts - supplemental requirements
29 CFR 1926.1433 - Design, construction and testing
29 CFR 1926.1434 - Equipment modifications
29 CFR 1926.1435 - Tower cranes
29 CFR 1926.1436 - Derricks
29 CFR 1926.1437 - Floating cranes/derricks and land cranes/derricks on barges
29 CFR 1926.1438 - Overhead & gantry cranes
29 CFR 1926.1439 - Dedicated pile drivers
29 CFR 1926.1440 - Side boom cranes
29 CFR 1926.1441 - Equipment with a rated hoisting/lifting capacity of 2,000 pounds or less
29 CFR 1926.1442 - Severability

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Note: Digger derricks when used to auger holes for poles carrying electric or telecommunication lines, placing & removing the poles, & for handling associated materials for installation on, or removal from, the poles, or when used for any other work subject to subpart V of this part. To be eligible for this exclusion, digger-derrick use in work subject to subpart V of this part must comply with all of the provisions of that subpart, & digger-derrick use in construction work for telecommunication service (as defined at Sec. 1910.268(s)(40)) must comply with all of the provisions of Sec. 1910.268.

Note: Critical Power Line Safety Information found at the end of this section.

Subpart CC, Cranes and Derricks in Construction, applies to power-operated equipment, and their attachments, that can hoist, lower and horizontally move a suspended load.

Exclusions to this standard include, but are not limited to:

a. Power-operated equipment that has been converted or adapted for a non-hoisting/lifting use.
b. Power shovels, excavators, wheel loaders, backhoes, loader backhoes, track loaders.
c. Machinery originally designed as vehicle-mounted aerial devices (for lifting personnel) and self-propelled elevating work platforms.
d. Powered industrial trucks (forklifts), except when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load.
e. Articulating/knuckle-boom truck cranes that deliver material to a construction site when used to transfer materials from the truck crane to the ground, without arranging the materials in a particular sequence for hoisting.
f. Articulating/knuckle-boom truck cranes that deliver material to a construction site when the crane is used to transfer building supply sheet goods or building supply packaged materials from the truck crane onto a structure, using a fork/cradle at the end of the boom, but only when the truck crane is equipped with a properly functioning automatic overload prevention device. Such sheet goods or packaged materials include but are not limited to sheets of sheet rock, sheets of plywood, bags of cement, sheets or packages of roofing shingles, and rolls of roofing felt.

Note: The above articulating/knuckle-boom crane exclusion does not apply when it is used to 1) hold, support or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure; 2) when the material being handled is a prefabricated component such as precast concrete members or panels, roof trusses, prefabricated building sections such as, but not limited to: floor panels, wall panels, roof panels, roof structures, or similar items; and, 3) when the material being handled by the crane is a structural steel member (for example, steel joists, beams, columns, steel decking (bundled or unbundled) or a component of a systems-engineered metal building.

Required Actions Prior to Assembly

Prior to assembly of a crane, care must be taken to ensure ground conditions are appropriate for the crane and other hazards, specifically, electrical hazards, are eliminated.

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Before assembling or disassembling equipment, we will determine if any part of the equipment, load line, or load including the rigging and lifting accessories could get, in the direction or area of assembly/disassembly, closer than 20 feet to a power line during the assembly/disassembly process. If so, we will meet the requirements in either Option 1, Option 2, or Option 3 which can be found in 29 CFR 1926 Subpart CC or at the end of this program under Critical Power Line Safety.

Ground Conditions

Note: Ground conditions means the ability of the ground to support the equipment (including slope, compaction, and firmness).

The controlling entity must ensure that the equipment is not assembled **or used** unless the ground conditions are firm drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.

Note: The requirement for the ground to be drained does not apply to marshes/wetlands.

The controlling entity must inform the user of the equipment and the operator of the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, and soil analyses) that are in the possession of the controlling entity (whether at the site or off-site) or the hazards are otherwise known to that controlling entity.

Note If there is no controlling entity for the project, the requirements above must be met by the employer that has authority at the site to make or arrange for ground preparations for crane operations.

If the Assembly/Disassembly director **or the operator** determines that ground conditions do not meet the above requirements, that person's employer **must** have a discussion with the controlling entity regarding the ground preparations that are needed so that, with the use of suitable supporting materials/devices (if necessary), the above requirements are met.

Assembly/Disassembly

When assembling or disassembling equipment (or attachments), the Assembly/Disassembly director must comply with all applicable manufacturer prohibitions and will select to use the manufacturer's procedures applicable to the equipment and/or attachments. Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons ("Assembly/ Disassembly director").

Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. This person will be considered the Assembly/Disassembly director. The Assembly/Disassembly director must understand the applicable assembly/disassembly procedures.

The Assembly/Disassembly director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/ disassembly unless the Assembly/Disassembly director understands the procedures and has applied them to the same type and configuration of equipment (including accessories, if any).

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Before commencing assembly/disassembly operations, the Assembly/Disassembly director must ensure that the crew members understand all of the following:

a. Their tasks.
b. The hazards associated with their tasks.
c. The hazardous positions/locations that they need to avoid.

Note: If during assembly/disassembly operations, before a crew member takes on a different task, or when adding new personnel during the operations, the Assembly/Disassembly director must complete the above three (3) steps.

Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment (or load) where the crew member could be injured by movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location. Where the operator knows that a crew member went to a location noted above, the operator must not move any part of the equipment (or load) until the operator is informed in accordance with a prearranged system of communication that the crew member is in a safe position.

When pins (or similar devices) are being removed, employees must not be under the boom, jib, or other components, except where Addressable/Disassembly director demonstrates that site constraints require one or more employees to be under the boom, jib, or other components when pins (or similar devices) are being removed, the Assembly/Disassembly director must implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom. During all phases of assembly/disassembly, rated capacity limits for loads imposed on the equipment, equipment components (including rigging), lifting lugs and equipment accessories, must not be exceeded for the equipment being assembled/disassembled.

The Assembly/Disassembly director supervising the assembly/disassembly operation must address the hazards associated with the operation, which include:

a. Site and ground conditions must be adequate for safe assembly/disassembly operations and to support the equipment during assembly/disassembly.
b. The size, amount, condition and method of stacking the blocking must be sufficient to sustain the loads and maintain stability.
c. When used to support lattice booms or components, blocking must be appropriately placed to:
    1. Protect the structural integrity of the equipment, and,
    2. Prevent dangerous movement and collapse.
d. When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be verified in accordance with 29 CFR 1926.1417(o)(3) before assembly/disassembly begins.
e. The point(s) of attachment of rigging to a boom (or boom sections or jib or jib sections) must be suitable for preventing structural damage and facilitating safe handling of these components.
f. The center of gravity of the load must be identified if that is necessary for the method used for maintaining stability.

Note: Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used.

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g. The boom sections, boom suspension systems (such as gantry A-frames and jib struts), and components must be rigged or supported to maintain stability upon the removal of the pins.
h. Suspension ropes and pendants must not be allowed to catch on the boom or jib connection pins or cotter pins (including keepers and locking pins).
i. The potential for unintended movement from inadequately supported counterweights and from hoisting counterweights.
j. Each time reliance is to be placed on the boom hoist brake to prevent boom movement during assembly/disassembly, the brake must be tested prior to such reliance to determine if it is sufficient to prevent boom movement. If it is not sufficient, a boom hoist pawl, other locking device/back-up braking device, or another method of preventing dangerous movement of the boom (such as blocking or using an assist crane) from a boom hoist brake failure must be used.
k. Backward stability before swinging the upper works, travel, and when attaching or removing equipment components.
l. The effect of wind speed and weather on the equipment.

Additionally, the following must be addressed, if applicable:

a. Manufacturer limitations on the maximum amount of boom supported only by cantilevering must not be exceeded. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must determine in writing this limitation, which must not be exceeded.
b. The weight of each of the components must be readily available.
c. The selection of components, and configuration of the equipment, that affect the capacity or safe operation of the equipment must be in accordance with:
d. Manufacturer instructions, prohibitions, limitations, and specifications.
    1. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components; or
    2. Approved modifications that meet the requirements of 29 CFR 1926.1434 (Equipment modifications).
e. Upon completion of assembly, the equipment must be inspected to ensure compliance with the above.

Post-Assembly

Upon completion of assembly, the equipment must be inspected by a qualified person to assure that it is configured in accordance with manufacturer equipment criteria.

Where manufacturer equipment criteria are unavailable, a qualified person must:

a. Determine if a registered professional engineer (RPE) familiar with the type of equipment involved is needed to develop criteria for the equipment configuration. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE.
b. Determine if the equipment meets the criteria developed in accordance with paragraph a. above.

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Equipment must not be used until an inspection demonstrates that the equipment is configured in accordance with the applicable criteria.

Note: Reusable shipping pins, straps, links, and similar equipment must be removed. Once they are removed, they must either be stowed or otherwise stored so that they do not present a falling object hazard.

Rigging

In addition to following the requirements in 29 CFR 1926.251 and other requirements in this and other standards applicable to rigging, when rigging is used for assembly/disassembly, the employer must ensure that:

a. The rigging work is done by a qualified rigger.
b. Synthetic slings are protected from: abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression. NOTE: Requirements for the protection of wire rope slings are contained in 29 CFR 1926.251(c)(9).
c. When synthetic slings are used, the synthetic sling manufacturer's instructions, limitations, specifications and recommendations must be followed.
d. All crane hooks must have self-closing latches. It is prohibited to block open the latch or disable to self-closing mechanism for any reason.
e. Tag lines must be used to stabilize the load. The only exception to this is that if the use of tag lines creates an unsafe condition.

Inspections:

Note: Any part of a manufacturer's procedures regarding inspections that relate to safe operation (such as to a safety device or operational aid, critical part of a control system power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) that is more comprehensive or has a more frequent schedule of inspection than the requirements of 1926.1412 must be followed.

Note: All inspection documents must be available, during the applicable document retention period, to all persons who conduct inspections.

Note: Written rated load test reports will be available. They will show test procedures and confirm the adequacy of repairs or alterations. Test loads will not exceed 110 percent of the rated load at any swing radius.

Modified Equipment Inspection:

Equipment that has had modifications or additions which affect the safe operation of the equipment (such as modifications or additions involving a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) or capacity must be inspected by a qualified person after such modifications/additions have been completed, prior to initial use. The inspection must meet all the requirements of 29 CFR 1926.1412(a).

Repaired/Adjusted Equipment Inspection:

Equipment that has had a repair or adjustment that relates to safe operation (such as: a repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism), must be inspected by a **qualified person** after such a repair or adjustment has been completed, prior to initial use. The inspection must meet all the requirements of 29 CFR 1926.1412(b). We will keep and maintain written inspections made by a qualified person for any repairs or alterations.

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Post-Assembly Inspection:

Upon completion of assembly, the equipment must be inspected by a **qualified** person to assure that it is configured in accordance with manufacturer equipment criteria.

The inspection must meet all the requirements of 29 CFR 1926.1412(c).

Each Shift Inspection:

A **competent person** must begin a visual inspection prior to each shift the equipment will be used, which must be completed before or during that shift. The inspection must consist of observation for apparent deficiencies. Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart equipment components or booming down is needed. Determinations made in conducting the inspection must be reassessed in light of observations made during operation. Some of the items include control mechanisms, pressurized lines, hooks and latches, wire rope, electrical apparatus, tires (when used), and ground conditions.

The inspection must meet all the requirements of 29 CFR 1926.1412(d).

Daily (each shift) inspections will be documented and include the following: items checked, results of the inspection, and name and signature of the inspection. Documentation of daily (each shift) inspections will be retained for 3 months.

Monthly Inspection:

Per 29 CFR 1926.1412(e)Each month the equipment is in service it must be inspected by **competent person.** The inspection must meet all the requirements of 29 CFR 1926.1412(d). See “Each Shift” inspection, above.

Note: Documented monthly inspection is not required if the daily (each shift) inspection is documented, and records are retained for 3 months.

Annual/Comprehensive Inspection:

a. At least every 12 months the equipment must be inspected by a **qualified** person in accordance with paragraph (d) of this section (each shift) except that the corrective action set forth in paragraphs (f)(4), (f)(5), and (f)(6) of this section must apply in place of the corrective action required by paragraphs (d)(2) and (d)(3) of this section. The inspection must meet all the requirements of 29 CFR 1926.1412(f).
b. In addition, at least every 12 months, the equipment must be inspected by a qualified person. Disassembly is required, as necessary, to complete the inspection. The inspection must meet all the requirements of 29 CFR 1926.1412(f).

Documentation of Annual/Comprehensive Inspection:

The following information must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection:

a. The items checked and the results of the inspection.
b. The name and signature of the person who conducted the inspection and the date.

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Severe Service Inspection:

Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), the equipment will stop being used and a **qualified** person must inspect it The inspection must meet all the requirements of 1926.1412(g).

Equipment Not in Regular Use Inspection:

Equipment that has been idle for 3 months or more must be inspected by a qualified person in accordance with the requirements of the Monthly inspection, above.

Wire Rope Inspection

Wire Rope Shift Inspection:

A competent person must begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift. The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for apparent deficiencies, including those listed in 29 CFR 1926.1413(a)(2). Untwisting (opening) of wire rope or booming down is not required as part of this inspection.

Daily (each shift) inspections will be documented and include the following: items checked, results of the inspection, and name and signature of the inspection. Documentation of daily (each shift) inspections will be retained for 3 months.

Wire Rope Monthly Inspection:

Each month an inspection must be conducted in accordance shift inspection, above, and 29 CFR 1926.1413(b).

Note: Documented monthly inspection is not required if the daily (each shift) inspection is documented, and records are retained for 3 months.

Wire Rope Annual/Comprehensive Inspection:

At least every 12 months, wire ropes in use on equipment must be inspected by a qualified person in accordance with shift inspection, above, and 29 CFR 1926.1413(c).

In addition, at least every 12 months, the wire ropes in use on equipment must be inspected by a qualified person in accordance with 29 CFR 1926.1413(c)

Documentation of Annual/Comprehensive Wire Rope Inspection:

The following information must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection:

a. The items checked and the results of the inspection.
b. The name and signature of the person who conducted the inspection and the date.

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Critical Lifts/Engineered Lifts

Critical lifts, critical picks, or engineered lifts are when 75% or more of a cranes total lifting capacity is used. Tandem lifts or lifts involving two or more cranes are also considered critical lifts or critical picks.

A competent person will make the determination if a lift is a critical or engineered lift and whether to use one or two cranes. The competent person will also ensure all inspections of the equipment and grounds that the lift is being performed on are in safe condition. All employees working around critical lifts will be trained according to their responsibilities, including but not limited to, how to rig materials to lift, inspect rigging materials, signaling, emergency procedures, etc.

Crane operators will have valid Crane Operator Certification. Crane operators will stay in constant contact with others involved in the lift operation via hand signals and/or radios. Each area where work is performed may have different regulations & permit requirements. Because of this our company will ensure we follow all city, county, state and federal (OSHA) regulations & complete all required permits prior to starting work.

Safety Devices

Note: A B:C fire extinguisher will be kept in the crane cab or in the vicinity of the crane.

Operations must not begin unless all of the devices listed below are in proper working order. If a device stops working properly during operations, the operator must safely stop operations. If any of the devices listed in this section are not in proper working order, the equipment must be taken out of service and operations must not resume until the device is again working properly.

a. Crane level indicator.
    1. The equipment must have a crane level indicator that is either built into the equipment or is available on the equipment.
    2. If a built-in crane level indicator is not working properly, it must be tagged-out or removed. If a removable crane level indicator is not working properly, it must be removed.
    3. This requirement does not apply to portal cranes, derricks, floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation.
b. Boom stops, except for derricks and hydraulic booms.
c. Jib stops (if a jib is attached), except for derricks.
d. Equipment with foot pedal brakes must have locks.
e. Hydraulic outrigger jacks and hydraulic stabilizer jacks must have an integral holding device/check valve.
f. Equipment on rails must have rail clamps and rail stops, except for portal cranes.
g. Horn
    1. The equipment must have a horn that is either built into the equipment or is on the equipment and immediately available to the operator.
    2. If a built-in horn is not working properly, it must be tagged-out or removed. If a removable horn is not working properly, it must be removed.

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Equipment Operations

Only designated personnel are permitted to operate any equipment. Operator must be certified to operate the equipment either by a nationally recognized training organization, by your employer and audited by a nationally recognized training organization, or by a government agency.

Operators must comply with all manufacturer procedures applicable to the operational functions of equipment, including its use with attachments.

Operators must have access to procedures applicable to the operation of the equipment and these items must be readily available in the cab at all times for use by the operator. These items include rated capacities (load charts), recommended operating speeds, special hazard warnings instructions, and operator's manual.

Note: Where rated capacities are available in the cab only in electronic form: in the event of a failure which makes the rated capacities inaccessible, the operator must immediately cease operations or follow safe shut-down procedures until the rated capacities (in electronic or other form) are available.

The operator must not engage in any practice or activity that diverts his/her attention while actually engaged in operating the equipment, such as the use of cellular phones (other than when used for signal communications).

The operator must ensure that all operational aids are functional at all times during operation of the crane or use the required temporary alternate methods specified in 29 CFR 1926.1416.

The operator has the authority **and responsibility** to stop and refuse to handle loads whenever there is a safety concern. A qualified person, at this point, must determine that safety has been assured.

Before any repairs are started, a warning or "Out of Order" sign will be placed on the crane.

A preventive maintenance program based upon the crane manufacturer's recommendations will be established to ensure the crane is ready to safely use when needed.

Signals:

A signal person must be provided in each of the following situations:

a. The point of operation, meaning the load travel or the area near or at load placement, is not in full view of the operator.
b. When the equipment is traveling, the view in the direction of travel is obstructed.
c. Due to site specific safety concerns, either the operator or the person handling the load determines that it is necessary.

Work Control Area

Swing Radius Hazards:

The requirements below apply where there are accessible areas in which the equipment's rotating superstructure (whether permanently or temporarily mounted) poses a reasonably foreseeable risk of:

a. Striking and injuring an employee; or
b. Pinching/crushing an employee against another part of the equipment or another object.

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To prevent employees from entering these hazard areas, the below procedures will be accomplished:

a. Train each employee assigned to work on or near the equipment ("authorized personnel") in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure.
b. Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas. *Exception*: When the employer can demonstrate that it is neither feasible to erect such barriers on the ground nor on the equipment, the hazard areas must be clearly marked by a combination of warning signs (such as "Danger – Swing/Crush Zone") and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify.

Protecting Employees in the Hazard Area:

Before an employee goes to a location in the hazard area that is out of view of the operator, the employee (or someone instructed by the employee) must ensure that the operator is informed that he/she is going to that location.

Where the operator knows that an employee went to a location within the swing area radius, the operator must not rotate the superstructure until the operator is informed in accordance with a prearranged system of communication that the employee is in a safe position. Where any part of a crane/derrick is within the working radius of another crane/derrick, the controlling entity must institute a system to coordinate operations. If there is no controlling entity, the employer (if there is only one employer operating the multiple pieces of equipment), or employers, must institute such a system.

Equipment Modifications

Modifications or additions which affect the capacity or safe operation of the equipment are prohibited except where below requirements are met.

a. Manufacturer review and approval.
    1. The manufacturer approves the modifications/additions in writing.
    2. The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.
    3. The original safety factor of the equipment is not reduced.
b. *Manufacturer refusal to review request*. The manufacturer is provided a detailed description of the proposed modification/addition, is asked to approve the modification/ addition, but it declines to review the technical merits of the proposal or fails, within 30 days, to acknowledge the request or initiate the review, and all of the following are met:
    1. A registered professional engineer who is a qualified person with respect to the equipment involved:
        i. Approves the modification/addition and specifies the equipment configurations to which that approval applies,
        ii. Modifies load charts, procedures, instruction manuals & instruction plates/tags/decals as necessary to accord with the modification/addition.
    2. The original safety factor of the equipment is not reduced.

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c. *Unavailable manufacturer*. The manufacturer is unavailable & the below is met.
    1. The manufacturer approves the modifications/additions in writing.
    2. The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.

d. *Manufacturer does not complete the review within 120 days of the request*. The manufacturer is provided a detailed description of the proposed modification/addition, is asked to approve the modification/addition, agrees to review the technical merits of the proposal, but fails to complete the review of the proposal within 120 days of the date it was provided the detailed description of the proposed modification/addition, and the below is met.
    1. The manufacturer approves the modifications/additions in writing.
    2. The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.

e. *Multiple manufacturers of equipment designed for use on marine work sites*. The equipment is designed for marine work sites, contains major structural components from more than one manufacturer, and the below is met.
    1. The manufacturer approves the modifications/additions in writing.
    2. The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition.

Modifications or additions which affect the capacity or safe operation of the equipment are prohibited where the manufacturer, after a review of the technical safety merits of the proposed modification/addition, rejects the proposal and explains the reasons for the rejection in a written response.

Training

Operator Training, Qualification and Certification

Crane operators are required to be certified or licensed and receive ongoing training as necessary to operate new equipment.

Note: A state or local license is required if:

a. Working within a state or locality that has licensing requirements, and

b. The licensing program meets the licensing and certification criteria listed in subpart CC.

c. A state or local license is valid for the period of time stipulated by the licensing office, but no longer than 5 years. It is portable only within the jurisdiction of the issuing agency.

Note: Written tests may be administered in a language understood by the operator candidate. When an operator's testing is based on a language other than English, it must be noted on the certificate.

All costs associated with training will be at no expense to the employee.

As of December 10, 2018, all operators must be certified or licensed.

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Accredited Crane Operator Testing Organization

An operator will be deemed qualified to operate a particular crane if they are certified for that type and capacity of crane, or the type only. If no accredited testing agency offers certification examinations for a particular type and capacity of crane, or the type only, an operator will be deemed qualified to operate that crane if they have been certified for the type and capacity of crane, or the type only, that is most similar to that crane and for which a certification examination is available.

The operator's certificate must state the type and capacity of crane, or the type only, of crane for which the operator is certified.

To achieve the above qualification, the operator must have received certification by an **accredited crane operator testing organization**.

Certification issued by an accredited crane operator testing organization is both portable and valid for 5 years.

Audited Employer Program

Currently this option will not be used because:

a. It is not portable.
b. It is time and manpower consuming.
c. It requires monitoring and outside approvals.

If this is used in the future, it will be in accordance with 1926.1427(c).

Operator-in-Training:

An employee who is not qualified or certified is permitted to operate a crane only as an operator-in-training and only where the below requirements are met:

a. The employer must provide each operator-in-training with sufficient training prior to operating the crane to enable the operator-in-training to operate it safely under limitations established by 29 CFR 1926.1430 (including continuous monitoring) and any additional limitations established by the employer.
b. The tasks performed by the operator-in-training while operating the crane must be within the operator-in-training's ability.
c. While operating the crane, the operator-in-training must be continuously monitored by an individual ("**operator's trainer**") who meets all of the following requirements:
    1. The operator's trainer is the employee or agent of LNE Electric.
    2. The operator's trainer is either a certified operator under 29 CFR 1926.1430 or has passed the written portion of a certification test, and is familiar with the proper use of the crane's controls.
    3. While monitoring the operator-in-training, the operator's trainer performs no tasks that detract from the trainer's ability to monitor the operator-in-training.
    4. For cranes other than tower cranes: the operator's trainer and the operator-in-training must be in direct line of sight of each other. In addition, they must communicate verbally or by hand signals. For tower cranes: the operator's trainer and the operator-in-training must be in direct communication with each other.

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will provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee's knowledge, there is an indication that retraining is necessary.

Rigger Training, Qualification and Certification

All costs associated with training will be at no expense to the employee. Riggers must be qualified. A qualified person means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

Signal Person Training, Qualification and Certification

All costs associated with training will be at no expense to the employee.

Signal persons must be qualified by either:

a. A third-party evaluator - Documentation is Portable, or
b. An employer qualified evaluator - Documentation is not Portable.

The training must include either a verbal or written test, PLUS a practical test. A certificate of completion will be provided upon successful completion of the training.

Training will include, but not be limited to, the following types of signals.

Hand Signals:

Note: Hand signal charts must be either posted on the crane or conspicuously posted in the vicinity of the hoisting operations. These charts will comply with the instructions found in Appendix A to Subpart CC of Part 1926–Standard Hand Signals.

When using hand signals, the Standard Method must be used (see Note, above).

Exception: Where use of the Standard Method for hand signals is infeasible, or where an operation or use of an attachment is not covered in the Standard Method, non-standard hand signals may be used in accordance with 29 CFR 1926.1419 (c)(2).

Non-Standard Hand Signals:

When using non-standard hand signals, the signal person, operator, and lift director (where there is one) must contact each other prior to the operation and agree on the non-standard hand signals that will be used.

Radio, Telephone or Other Electronic Transmission of Signals:

The device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.

Signal transmission must be through a dedicated channel, except:

a. Multiple cranes/derricks and one or more signal persons may share a dedicated channel for the purpose of coordinating operations.
b. Where a crane is being operated on or adjacent to railroad tracks, and the actions of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks.

The operator’s reception of signals must be by a hands-free system.

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New Signals:

Signals other than hand, voice, or audible signals may be used where it may be demonstrated that:

a. The new signals provide at least equally effective communication as voice audible, or Standard Method hand signals, or
b. The new signals comply with a national consensus standard that provides at least equally effective communication as voice, audible, or Standard Method hand signals.

Voice Signals:

If voice signals are used, prior to beginning operations, the operator, signal person and lift director (if there is one), must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these workers need not meet again to discuss voice signals unless another worker is added or substituted, there is confusion about the voice signals or a voice signal is to be changed.

Each voice signal must contain the following three elements, given in the following order: function (such as hoist, boom, etc.), direction; distance and/or speed; function stop command.

The operator, signal person and lift director (if there is one), must be able to effectively communicate in the language used.

Additional Signal Information:

a. The signals used (hand, voice, audible, or new), and means of transmitting the signals to the operator (such as direct line of sight, video, radio, etc.) must be appropriate for the site conditions.
b. During operations requiring signals, the ability to transmit signals between the operator and signal person must be maintained. If that ability is interrupted at any time the operator must safely stop operations requiring signals until it is reestablished, and a proper signal is given and understood.
c. If the operator becomes aware of a safety problem and needs to communicate with the signal person, the operator must safely stop operations. Operations must not resume until the operator and signal person agree that the problem has been resolved.
d. Only one person may give signals to a crane/derrick at a time, except in circumstances covered by the below:
    1. Anyone who becomes aware of a safety problem must alert the operator or signal person by giving the stop or emergency stop signal.

        Note: 29 CFR 1926.1417(y) requires the operator to obey a stop or emergency stop signal.
e. All directions given to the operator by the signal person must be given from the operator's direction perspective.

Where a signal person(s) is in communication with more than one crane/derrick, a system must be used for identifying the crane/derrick each signal is for, as follows:

a. For each signal, prior to giving the function/direction, the signal person must identify the crane/derrick the signal is for, or
b. Must use an equally effective method of identifying which crane/derrick the signal is for.

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Power Lines Training

We must ensure that each operator and crew member assigned to work with cranes receive the necessary training. The training must cover the following:

a. The procedures to be followed in the event of electrical contact with a power line. Such training must include:
    1. Information regarding the danger of electrocution from the operator simultaneously touching the crane and the ground.
    2. The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.
    3. The safest means of evacuating from a crane that may be energized.
    4. The danger of the potentially energized zone around the crane (step potential).
    5. The need for crew in the area to avoid approaching or touching the crane and the load.
    6. Safe clearance distance from power lines.
b. Power lines are presumed to be energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.
c. Power lines are presumed to be uninsulated unless the utility owner/operator or a registered engineer who is a qualified person with respect to electrical power transmission and distribution confirms that a line is insulated.
d. The limitations of an insulating link/device, proximity alarm, and range control (and similar) device, if used.
e. The procedures to be followed to properly ground the crane and the limitations of grounding.
f. Employees working as dedicated spotters must be trained to enable them to effectively perform their task.

Critical Power Line Safety Information

[75 FR 48135, Aug. 9, 2010, as amended at 79 FR 20743, Apr. 11, 2014]

§1926.1407 Power line safety (up to 350 kV)—assembly and disassembly.

(a) Before assembling or disassembling equipment, the employer must determine if any part of the equipment, load line, or load (including rigging and lifting accessories) could get, in the direction or area of assembly/disassembly, closer than 20 feet to a power line during the assembly/disassembly process. If so, the employer must meet the requirements in Option (1), Option (2), or Option (3) of this section, as follows:

(1) *Option (1)—Deenergize and ground.* Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite.

(2) *Option (2)—20-foot clearance.* Ensure that no part of the equipment, load line or load (including rigging and lifting accessories), gets closer than 20 feet to the power line by implementing the measures specified in paragraph (b) of this section.

(3) *Option (3)—Table A clearance.*

(i) Determine the line's voltage and the minimum clearance distance permitted under Table A (*see* §1926.1408).

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(ii) Determine if any part of the equipment, load line, or load (including rigging and lifting accessories), could get closer than the minimum clearance distance to the power line permitted under Table A (*see* §1926.1408). If so, then the employer must follow the requirements in paragraph (b) of this section to ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum clearance distance.

(b) *Preventing encroachment/electrocution.* Where encroachment precautions are required under Option (2), or Option (3) of this section, all of the following requirements must be met:

(1) Conduct a planning meeting with the Assembly/Disassembly director (A/D director), operator, assembly/disassembly crew and the other workers who will be in the assembly/disassembly area to review the location of the power line(s) and the steps that will be implemented to prevent encroachment/electrocution.

(2) If tag lines are used, they must be nonconductive.

(3) At least one of the following additional measures must be in place. The measure selected from this list must be effective in preventing encroachment.

The additional measures are:

(i) Use a dedicated spotter who is in continuous contact with the equipment operator. The dedicated spotter must:

(A) Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A clearly visible line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter).

(B) Be positioned to effectively gauge the clearance distance.

(C) Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

(D) Give timely information to the operator so that the required clearance distance can be maintained.

(ii) A proximity alarm set to give the operator sufficient warning to prevent encroachment.

(iii) A device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment.

(iv) A device that automatically limits range of movement, set to prevent encroachment.

(v) An elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings.

(c) *Assembly/disassembly below power lines prohibited.* No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed below a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line.

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(d) *Assembly/disassembly inside Table A clearance prohibited.* No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed closer than the minimum approach distance under Table A (*see* §1926.1408) to a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line.

(e) *Voltage information.* Where Option (3) of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer's request.

(f) *Power lines presumed energized.* The employer must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

(g) *Posting of electrocution warnings.* There must be at least one electrocution hazard warning conspicuously posted in the cab so that it is in view of the operator and (except for overhead gantry and tower cranes) at least two on the outside of the equipment.

§1926.1408 Power line safety (up to 350 kV)—equipment operations.

(a) *Hazard assessments and precautions inside the work zone.* Before beginning equipment operations, the employer must:

(1) *Identify the work zone by either:*

(i) Demarcating boundaries (such as with flags, or a device such as a range limit device or range control warning device) and prohibiting the operator from operating the equipment past those boundaries, or

(ii) Defining the work zone as the area 360 degrees around the equipment, up to the equipment's maximum working radius.

(2) Determine if any part of the equipment, load line or load (including rigging and lifting accessories), if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so, the employer must meet the requirements in Option (1), Option (2), or Option (3) of this section, as follows:

(i) *Option (1)—Deenergize and ground.* Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite.

(ii) *Option (2)—20-foot clearance.* Ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer than 20 feet to the power line by implementing the measures specified in paragraph (b) of this section.

(iii) *Option (3)—Table A clearance.*

(A) Determine the line's voltage and the minimum approach distance permitted under Table A (*see* §1926.1408).

(B) Determine if any part of the equipment, load line or load (including rigging and lifting accessories), while operating up to the equipment's maximum working radius in the work zone, could get closer than the minimum approach distance of the power line permitted under Table A (*see* §1926.1408). If so, then the employer must follow the requirements in paragraph (b) of this section to ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum approach distance.

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(b) *Preventing encroachment/electrocution.* Where encroachment precautions are required under Option (2) or Option (3) of this section, all of the following requirements must be met:

(1) Conduct a planning meeting with the operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution.

(2) If tag lines are used, they must be non-conductive.

(3) Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20 feet from the power line (if using Option (2) of this section) or at the minimum approach distance under Table A (*see* §1926.1408) (if using Option (3) of this section). If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in §1926.1408(b)(4)(ii) in addition to implementing one of the measures described in §§1926.1408(b)(4)(i), (iii), (iv) and (v).

(4) Implement at least one of the following measures:

(i) A proximity alarm set to give the operator sufficient warning to prevent encroachment.

(ii) A dedicated spotter who is in continuous contact with the operator. Where this measure is selected, the dedicated spotter must:

(A) Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A clearly visible line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter).

(B) Be positioned to effectively gauge the clearance distance.

(C) Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

(D) Give timely information to the operator so that the required clearance distance can be maintained.

(iii) A device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment.

(iv) A device that automatically limits range of movement, set to prevent encroachment.

(v) An insulating link/device, as defined in §1926.1401, installed at a point between the end of the load line (or below) and the load.

(5) The requirements of paragraph (b)(4) of this section do not apply to work covered by subpart V of this part.

(c) *Voltage information.* Where Option (3) of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer's request.

(d) *Operations below power lines.*

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(1) No part of the equipment, load line, or load (including rigging and lifting accessories) is allowed below a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line, except where one of the exceptions in paragraph (d)(2) of this section applies.

(2) *Exceptions.* Paragraph (d)(1) of this section is inapplicable where the employer demonstrates that one of the following applies:

(i) The work is covered by subpart V of this part.

(ii) For equipment with non-extensible booms: The uppermost part of the equipment, with the boom at true vertical, would be more than 20 feet below the plane of the power line or more than the Table A of this section minimum clearance distance below the plane of the power line.

(iii) For equipment with articulating or extensible booms: The uppermost part of the equipment, with the boom in the fully extended position, at true vertical, would be more than 20 feet below the plane of the power line or more than the Table A of this section minimum clearance distance below the plane of the power line.

(iv) The employer demonstrates that compliance with paragraph (d)(1) of this section is infeasible and meets the requirements of §1926.1410.

(e) *Power lines presumed energized.* The employer must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

(f) When working near transmitter/communication towers where the equipment is close enough for an electrical charge to be induced in the equipment or materials being handled, the transmitter must be deenergized or the following precautions must be taken:

(1) The equipment must be provided with an electrical ground.

(2) If tag lines are used, they must be non-conductive.

(g) *Training.*

(1) The employer must train each operator and crew member assigned to work with the equipment on all of the following:

(i) The procedures to be followed in the event of electrical contact with a power line. Such training must include:

(A) Information regarding the danger of electrocution from the operator simultaneously touching the equipment and the ground.

(B) The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.

(C) The safest means of evacuating from equipment that may be energized.

(D) The danger of the potentially energized zone around the equipment (step potential).

(E) The need for crew in the area to avoid approaching or touching the equipment and the load.

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(F) Safe clearance distance from power lines.

(ii) Power lines are presumed to be energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

(iii) Power lines are presumed to be uninsulated unless the utility owner/operator or a registered engineer who is a qualified person with respect to electrical power transmission and distribution confirms that a line is insulated.

(iv) The limitations of an insulating link/device, proximity alarm, and range control (and similar) device, if used.

(v) The procedures to be followed to properly ground equipment and the limitations of grounding.

(2) Employees working as dedicated spotters must be trained to enable them to effectively perform their task, including training on the applicable requirements of this section.

(3) Training under this section must be administered in accordance with §1926.1430(g).

(h) Devices originally designed by the manufacturer for use as: A safety device (*see* §1926.1415), operational aid, or a means to prevent power line contact or electrocution, when used to comply with this section, must meet the manufacturer's procedures for use and conditions of use.

Table A—Minimum Clearance Distances

Voltage (Nominal, kV, Alternating Current)	Minimum Clearance Distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission & distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

§1926.1409 Power line safety (over 350 kV).

The requirements of §1926.1407 and §1926.1408 apply to power lines over 350 kV except:

(a) For power lines at or below 1000 kV, wherever the distance "20 feet" is specified, the distance "50 feet" must be substituted; and

(b) For power lines over 1000 kV, the minimum clearance distance must be established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

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§1926.1410 Power line safety (all voltages)—equipment operations closer than the Table A zone.

Equipment operations in which any part of the equipment, load line, or load (including rigging and lifting accessories) is closer than the minimum approach distance under Table A of §1926.1408 to an energized power line is prohibited, except where the employer demonstrates that all of the following requirements are met:

(a) The employer determines that it is infeasible to do the work without breaching the minimum approach distance under Table A of §1926.1408.

(b) The employer determines that, after consultation with the utility owner/operator, it is infeasible to deenergize and ground the power line or relocate the power line.

(c) *Minimum clearance distance.*

(1) The power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution determines the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include, but are not limited to: Conditions affecting atmospheric conductivity; time necessary to bring the equipment, load line, and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions, and other conditions affecting the ability to prevent electrical contact.

(2) Paragraph (c)(1) of this section does not apply to work covered by subpart V of this part; instead, for such work, the minimum approach distances established by the employer under sect;1926.960(c)(1)(i) apply.

(d) A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) is held to determine the procedures that will be followed to prevent electrical contact and electrocution. At a minimum these procedures must include:

(1) If the power line is equipped with a device that automatically reenergizes the circuit in the event of a power line contact, before the work begins, the automatic reclosing feature of the circuit interrupting device must be made inoperative if the design of the device permits.

(2) A dedicated spotter who is in continuous contact with the operator. The dedicated spotter must:

(i) Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter).

(ii) Be positioned to effectively gauge the clearance distance.

(iii) Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

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(iv) Give timely information to the operator so that the required clearance distance can be maintained.

(3) An elevated warning line, or barricade (not attached to the crane), in view of the operator (either directly or through video equipment), equipped with flags or similar high-visibility markings, to prevent electrical contact. However, this provision does not apply to work covered by subpart V of this part.

(4) *Insulating link/device.* (i) An insulating link/device installed at a point between the end of the load line (or below) and the load.

(ii) Paragraph (d)(4)(i) of this section does not apply to work covered by subpart V of this part.

(iii) [Reserved]

(iv) Until November 8, 2011, the following procedure may be substituted for the requirement in paragraph (d)(4)(i) of this section: All employees, excluding equipment operators located on the equipment, who may come in contact with the equipment, the load line, or the load must be insulated or guarded from the equipment, the load line, and the load. Insulating gloves rated for the voltage involved are adequate insulation for the purposes of this paragraph.

(v) Until November 8, 2013, the following procedure may be substituted for the requirement in (d)(4)(i) of this section:

(A) The employer must use a link/device manufactured on or before November 8, 2011, that meets the definition of an insulating link/device, except that it has not been approved by a Nationally Recognized Testing Laboratory, and that is maintained and used in accordance with manufacturer requirements and recommendations, and is installed at a point between the end of the load line (or below) and the load; and

(B) All employees, excluding equipment operators located on the equipment, who may come in contact with the equipment, the load line, or the load must be insulated or guarded from the equipment, the load line, and the load through an additional means other than the device described in paragraph (d)(4)(v)(A) of this section. Insulating gloves rated for the voltage involved are adequate additional means of protection for the purposes of this paragraph.

(5) Nonconductive rigging if the rigging may be within the Table A of §1926.1408 distance during the operation.

(6) If the equipment is equipped with a device that automatically limits range of movement, it must be used and set to prevent any part of the equipment, load line, or load (including rigging and lifting accessories) from breaching the minimum approach distance established under paragraph (c) of this section.

(7) If a tag line is used, it must be of the nonconductive type.

(8) Barricades forming a perimeter at least 10 feet away from the equipment to prevent unauthorized personnel from entering the work area. In areas where obstacles prevent the barricade from being at least 10 feet away, the barricade must be as far from the equipment as feasible.

(9) Workers other than the operator must be prohibited from touching the load line above the insulating link/device and crane. Operators remotely operating the equipment from the ground must use either wireless controls that isolate the operator from the equipment or insulating mats that insulate the operator from the ground.

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(10) Only personnel essential to the operation are permitted to be in the area of the crane and load.

(11) The equipment must be properly grounded.

(12) Insulating line hose or cover-up must be installed by the utility owner/operator except where such devices are unavailable for the line voltages involved.

(e) The procedures developed to comply with paragraph (d) of this section are documented and immediately available on-site.

(f) The equipment user and utility owner/operator (or registered professional engineer) meet with the equipment operator and the other workers who will be in the area of the equipment or load to review the procedures that will be implemented to prevent breaching the minimum approach distance established in paragraph (c) of this section and prevent electrocution.

(g) The procedures developed to comply with paragraph (d) of this section are implemented.

(h) The utility owner/operator (or registered professional engineer) and all employers of employees involved in the work must identify one person who will direct the implementation of the procedures. The person identified in accordance with this paragraph must direct the implementation of the procedures and must have the authority to stop work at any time to ensure safety.

(i) [Reserved]

(j) If a problem occurs implementing the procedures being used to comply with paragraph (d) of this section, or indicating that those procedures are inadequate to prevent electrocution, the employer must safely stop operations and either develop new procedures to comply with paragraph (d) of this section or have the utility owner/operator deenergize and visibly ground or relocate the power line before resuming work.

(k) Devices originally designed by the manufacturer for use as a safety device (*see* §1926.1415), operational aid, or a means to prevent power line contact or electrocution, when used to comply with this section, must comply with the manufacturer's procedures for use and conditions of use.

(l) [Reserved]

(m) The employer must train each operator and crew member assigned to work with the equipment in accordance with §1926.1408(g).

[75 FR 48135, Aug. 9, 2010, as amended at 79 FR 20743, Apr. 11, 2014]

§1926.1411 Power line safety—while traveling under or near power lines with no load.

(a) This section establishes procedures and criteria that must be met for equipment traveling under or near a power line on a construction site with no load. Equipment traveling on a construction site with a load is governed by §§1926.1408, 1926.1409 or 1926.1410, whichever is appropriate, and §1926.1417(u).

(b) The employer must ensure that:

(1) The boom/mast and boom/mast support system are lowered sufficiently to meet the requirements of this paragraph.

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(2) The clearances specified in Table T of this section are maintained.

(3) The effects of speed and terrain on equipment movement (including movement of the boom/mast) are considered so that those effects do not cause the minimum clearance distances specified in Table T of this section to be breached.

(4) *Dedicated spotter.* If any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must ensure that a dedicated spotter who is in continuous contact with the driver/operator is used. The dedicated spotter must:

(i) Be positioned to effectively gauge the clearance distance.

(ii) Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

(iii) Give timely information to the operator so that the required clearance distance can be maintained.

(5) *Additional precautions for traveling in poor visibility.* When traveling at night, or in conditions of poor visibility, in addition to the measures specified in paragraphs (b)(1) through (4) of this section, the employer must ensure that:

(i) The power lines are illuminated or another means of identifying the location of the lines is used.

(ii) A safe path of travel is identified and used.

Table T—Minimum Clearance Distances While Traveling with No Load

Voltage (Nominal, kV, Alternating Current)	While Traveling—Minimum Clearance Distance (feet)
up to 0.75	4
over .75 to 50	6
over 50 to 345	10
over 345 to 750	16
Over 750 to 1,000	20
Over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

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29 CFR 1926 Subpart M – Fall Protection

Policy Statement

Compliance with 29 CFR 1926.502(d)(20)

29 CFR 1926.502(d)(20) states: “The employer will provide for prompt rescue of employees in the event of a fall or will assure that employees are able to rescue themselves.”

Per OSHA interpretation letters [J. Nigel Ellis (May 11, 1999) & Charles Hill (August 14, 2000)], the hazard being addressed by 29 CFR 1926.502(d)(20) is being suspended by the fall arrest system after an arrested fall.

Prompt rescue is not defined, but it does imply that rescue be performed quickly – in time to prevent serious injury to the suspended worker.

As a matter of policy, under no circumstances will employees of LNE Electric attempt to perform a self-rescue.

The rationale for this policy is as follows:

a. Expecting a suspended employee to perform self-rescue presupposes that the employee is:
    1. Of clear mind after the fall, and
    2. In excellent physical condition, and
    3. Has not sustained any injuries from the fall arrest, and
    4. Did not have a medical event that caused the fall in the first place (fainting, for example).
b. Because employees at LNE Electric are not professional rescue persons, in depth self-rescue training would be required and practice self-rescue exercises performed for each possible combination of fall scenarios.
c. Specialized self-rescue equipment and training on that equipment would be required.
d. Self-rescue is not required by 29 CFR 1926.502(d)(20).

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Prompt Rescue Procedures:

As a matter of policy, an employee performing work requiring a personal fall arrest system **will not work alone**. He/she will be in sight of another employee using a personal fall arrest system or be monitored by a safety monitor whose sole job will be to ensure there is not a fall event that goes unnoticed.

Prior to performing work requiring a personal fall arrest system, Matt Landers, our Safety Program administrator, or a designated competent person, will:

a. Assess the possible fall scenarios; and
b. Take inventory of in-house equipment that is readily available for possible rescue (ladders, forklifts, mobile scaffold, etc.); and
c. Be prepared to implement a plan of action utilizing our in-house equipment should a fall occur; or
d. Call an emergency rescue service and give them:
    1. Our exact location.
    2. A quick synopsis of what happened.
    3. The height of the suspended person.
    4. Known or suspected injuries.

_____

Matt Landers

Safety Director

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Overview

One of the most serious hazards faced by the employees of LNE Electric is falls from heights. Our Fall Protection Program has been developed to prevent injury from falls of six (6) feet or more from a walking/working surface to a lower level, to prevent objects falling from above and striking persons below, and to prevent job site persons from falling into holes. Within the context of this program, the term “fall hazard” does not refer to tripping and falling, which is addressed in our general safety & health program, nor does it apply to falling off a ladder or scaffold. Scaffold and ladder safety is addressed within its own program.

A copy of our Fall Protection **Program** can be found readily accessible to our employees on appropriate job sites.

A copy of our Fall Protection **Plan** will be found on every applicable job site.

On all job sites where fall hazards exist, there will be at least one competent person who has the training and ability to identify fall hazards and the authority to ensure that proper fall protection systems are properly implemented.

The following areas of concern are addressed by this Program:

a. The need to know where fall protection is required.
b. Selection of fall protection systems which are appropriate for given situations.
c. Construction and installation of safety systems.
d. Supervision of employees.
e. Implementation of safe work procedures.
f. Training in selection, use, and maintenance of fall protection systems.

Our Fall Protection Program may be reviewed at any time by employees at LNE Electric. Should a question arise concerning this Program, personnel are encouraged to consult with their supervisor, or Matt Landers, our Fall Protection Program Administrator.

Duties of the Program Administrator

Matt Landers's duties include:

a. Training of personnel.
b. Maintenance of training records.
c. Random, unannounced job site inspections to assure compliance with both OSHA standards and company safety policies.
d. Resolution of specific problems that may present themselves regarding a particular job site situation.
e. Designating a competent (by training or experience) person at each applicable job site who will ensure:
    1. A copy of our fall protection program/plan is readily accessible on appropriate job sites.
    2. Subcontractors with whom we may work are appropriately trained in fall protection.
    3. A written certification record has been prepared documenting that employees who have potential exposure to fall hazards at the job site have received the required training in protection.

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4. The fall protection system(s) utilized at the job site are appropriate for the hazard(s) present.
5. That, before any work is initiated, the walking/working surfaces at the job site are capable of supporting both our personnel and equipment.

Matt Landers will be familiar with all applicable standards and will keep up to date of developments in the field of fall protection.

Pre-Project Planning

Fall protection requires a joint effort by our personnel, and the specialty subcontractors who may be working with us, to identify work situations in which fall hazards exist, determine the most appropriate fall protection system to be utilized, and to ensure that all persons understand the proper methods of utilizing the selected fall protection systems. A pre-construction survey by a competent person will often provide the information needed to make these determinations.

Fall protection system requirements may change during a project and the competent person on site will ensure that fall protection is maintained at all times. Care will be taken to assure that load limits are not exceeded on walking/working surfaces and attachment points and hardware is capable of withstanding (with the appropriate safety factor) the potential forces that may be generated during an actual fall incident.

Fall protection hardware and equipment owned, rented, or leased will be NIOSH/ANSI approved and it is assumed that the manufacturer's technical specifications and capabilities are accurate.

From the very inception of a potential project (pre-bid) to completion, fall protection needs and costs will be factored in.

Definitions

There are a number of terms and phrases, not common in everyday life, which must be understood to grasp the thrust of this Fall Protection Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of our Fall Protection Program.

Note: Words used within the definitions which are themselves defined are printed in bold italic.

Anchorage means a secure point of attachment for *lifelines*, *lanyards* or *deceleration devices*.

Body Harness means straps which may be secured about the employee in a manner that will distribute the fall arrest over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a *personal fall arrest system*.

Buckles means any device for holding the *body harness* closed around the employee's body.

Carabiner means an oval metal ring with a snap link used to fasten a rope to the piton [a spike (attachment) with an eye to which a rope can be secured.]

CFR means Code of Federal Regulations.

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

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Connector means a device which is used to couple (connect) parts of the ***personal fall arrest system*** and ***positioning device systems*** together. It may be an independent component of the system, such as a ***carabineer***, or it may be an integral component of part of the system (such as a ***buckle*** or d-ring sewn into a self-retracting ***lanyard***).

Controlled Access Zone (CAZ) means an area in which certain work (e.g., ***overhand bricklaying***) may take place without the use of ***guardrail systems***, ***personal fall arrest systems***, or safety net systems; access to the zone is controlled.

Dangerous Equipment means equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

Deceleration Device means any mechanism, such as a ***rope grab***, rip-stitch ***lanyard***, specially-woven ***lanyard***, tearing or deforming ***lanyards***, automatic self-retracting ***lifelines***/***lanyards***, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Deceleration Distance means the additional vertical distance a falling employee travels from the point at which the ***deceleration device*** begins to operate before stopping, excluding ***lifeline*** elongation & ***free fall distance***. It is measured as the distance between the location of an employee's ***body harness*** attachment point at the moment of activation (at the onset of fall arrest forces) of the ***deceleration device*** during a fall, & the location of that attachment point after the employee comes to a full stop.

Equivalent means alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

Failure means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Free Fall means the act of falling before a ***personal fall arrest system*** begins to apply force to arrest the fall.

Free Fall Distance means the vertical displacement of the fall arrest attachment point on the employee's ***body harness*** between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes ***deceleration distance***, and ***lifeline***/***lanyard*** elongation, but includes any ***deceleration device*** slide distance of ***self-retracting lifeline/lanyard*** extension before they operate and fall arrest forces occur.

Guardrail System means a barrier erected to prevent employees from falling to ***lower levels***.

Hole means a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, ***roof***, or other ***walking/working surface***.

Infeasible means it is impossible to perform the construction work using a conventional fall protection system (i.e., ***guardrail system***, safety net system, or ***personal fall arrest system***) or that it is technologically impossible to use any one of these systems to provide fall protection.

Lanyard means a flexible line of rope, wire rope, or strap which generally has a ***connector*** at each end for connecting the ***body harness*** to a ***deceleration device***, ***lifeline***, or ***anchorage***.

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Leading Edge means the edge of a floor, ***roof***, or formwork for a floor or other ***walking/working surface*** (such as the deck) which changes location as additional floor, ***roof***, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline means a component consisting of a flexible line for connection to an ***anchorage*** at one end to hang vertically (vertical lifeline), or for connection to ***anchorages*** at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of ***personal fall arrest system*** to the ***anchorage*.**

Low-Slope Roof means a ***roof*** having a slope less than or equal to 4 in 12 (vertical to horizontal).

Lower Levels means those areas or surfaces to which an employee can fall. Such areas or surfaces to include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

Mechanical Equipment means all motor or human propelled wheeled equipment used for ***roofing work***, except wheelbarrows and mop carts.

Opening means a gap or void 30 inches or higher and 18 inches or wider, in a wall or partition through which employees can fall to a ***lower level***.

Overhand Bricklaying and Related Work means the process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.

Personal Fall Arrest System means a system used to arrest an employee in a fall from a working level. It consists of an ***anchorage***, ***connectors***, a ***body harness,*** and may include a ***lanyard***, ***deceleration device***, ***lifeline***, or suitable combination of these. **The use of body belts for fall arrest is prohibited.**

Positioning Device System means a *body belt* or ***body harness*** system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Qualified Person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Rope Grab means a ***deceleration device*** which travels on a ***lifeline*** and automatically, by friction, engages the ***lifeline*** and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Roof means the exterior surface on the top of a building. This does not include floors or formworks which, because a building has not been completed, temporarily become the top surface of a building.

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Roofing Work means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the ***roof*** deck.

Safety Monitoring System means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self-Retracting Lifeline/Lanyard means a ***deceleration device*** containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook means a ***connector*** comprised of a hook-shaped member with a normally closed keeper of similar arrangement which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types:

a. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
b. The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. The use of a non-locking snaphook as part of ***personal fall arrest systems*** and ***positioning device systems*** is prohibited.

Steep Roof means a ***roof*** having a slope greater than 4 in 12 (vertical to horizontal).

Toeboards mean a low protective barrier that will prevent the fall of material and equipment to ***lower levels*** and provide protection from falls for personnel.

Unprotected Sides and Edges means any side or edge (except at entrances to points of access) of a ***walking/working surface***, e.g., floor, ***roof***, ramp, or runway where there is no wall or ***guardrail system*** at least 39 inches high.

Walking/Working Surface means any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runway, formwork and concrete reinforcing steel; not including ladders, vehicles, or trailers on which employees must be located in order to perform their job duties.

Warning Line System means a barrier erected on a ***roof*** to warn employees that they are approaching an unprotected ***roof*** side or edge, and which designates an area in which ***roofing work*** may take place **without** the use of a guardrail, ***body belt***, or safety net systems to protect employees in the area.

Work Area means that portion of a ***walking/working surface*** where job duties are being performed.

Where Fall Protection is Required

The "key" distance is six (6) feet. All employees must be aware that if there is a possibility of falling six (6) feet or more at least one (1) fall protection system will be implemented. Further, protection from being struck by falling objects from above will be provided on all job sites.

All areas identified by OSHA are included because, over time, most of these areas will present themselves on job sites even if the exposures are the result of another contractor's work.

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Below listed are specific situations where fall protection systems will be utilized.

Unprotected Sides and Edges:

Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge, which is 6 feet or more above a lower level, will be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Leading Edges:

Each employee who is constructing a leading edge 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

Hoist Areas:

Each employee in a hoist area will be protected from falling 6 feet or more to lower levels by guardrail systems or personal fall arrest systems.

If a guardrail system is utilized in a hoist area and portions of the system are removed to facilitate the hoisting operation, and an employee must lean through the access opening or out over the edge of the access opening, that employee must be protected by a fall arrest system.

Holes:

Each employee on walking/working surfaces will be protected from falling through holes (including skylights) more than 6 feet above lower levels by personal fall arrest systems, covers, or guardrail systems.

a. Each employee on a walking/working surface will be protected from tripping in or stepping into or through holes (including skylights) (regardless of height) by covers.
b. Each employee on a walking/working surface will be protected from objects falling through holes (regardless of height) by covers.

Formwork and Reinforcing Steel:

Each employee on the face of formwork or reinforcing steel will be protected from falling 6 feet or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

Ramps, Runways and other Walkways:

Each employee on ramps, runways, and other walkways will be protected from falling 6 feet or more to lower levels by guardrail systems.

Excavations:

Each employee at the edge of an excavation 6 feet or more in depth will be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barriers.

Further, each employee at the edge of a well, pit, shaft, and similar excavation 6 feet or more in depth will be protected from falling by guardrail systems, fences, barricades, or covers.

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Dangerous Equipment:

Each employee less than 6 feet above dangerous equipment will be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.

Each employee 6 feet or more above dangerous equipment will be protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems.

Overhand Bricklaying and other Related Work:

Each employee performing overhand bricklaying and related work 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or will work in a controlled access zone.

Each employee performing overhand bricklaying and related work who is required to reach more than 10 inches below the level of the walking/working surface on which he/she is working will be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

Roofing Work on Sloped Roofs:

Each employee engaged in roofing activities on low-sloped roofs with unprotected sides and edges 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and a safety net system or a warning line system and a safety monitoring system.

Note: On roofs 50 feet or less in width, the use of a safety monitoring system alone (without the warning line system) is permitted.

Steep Roofs:

Each employee on a steep roof with unprotected sides and edges 6 feet or more above lower levels will be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Precast Concrete Erection:

Each employee, engaged in the erection of precast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof "tee") and related operations such as grouting of precast concrete members, who is 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.

Residential Construction:

Each employee engaged in residential construction activities 6 feet or more above lower levels will be protected by guardrail systems, safety net systems, or personal fall arrest systems.

Wall Openings:

Each employee working on, at, above, or near 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, will be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

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Walking/Working Surfaces Not Otherwise Addressed:

Each employee on a walking/working surface 6 feet or more above a lower level that is not addressed in the preceding categories will be protected from falling by a guardrail system, a safety net system, or a personal fall arrest system except when:

a. Working on scaffolds, fall protection requirements are covered by 29 CFR 1926 Subpart L.
b. Working on certain cranes and derricks, fall protection requirements are covered by 29 CFR 1926 Subpart N.
c. Performing steel erection work in buildings, fall protection requirements are covered by 29 CFR 1926 Subpart R.
d. Working on certain types of equipment used in tunneling operations, fall protection requirements are covered by 29 CFR 1926 Subpart S.
e. Engaged in the construction of electric transmission and distribution lines, equipment fall protection requirements are covered by 29 CFR 1926 Subpart V.
f. Working on stairways and ladders fall protection requirements are covered by 29 CFR 1926 Subpart X.

Note: On multi-employer work sites, employees of all contractors and subcontractors must understand the fall protection hazards that exist and be aware of the various methods of fall protection even if they are NOT directly exposed to fall hazards in their particular work area. For example, a contractor may have a controlled access zone in place and all persons on the job site, regardless of their employer, must understand the importance of remaining outside that CAZ.

Pre-Construction Survey

Prior to the initiation of any construction project, the job site will be surveyed by a competent/qualified person to determine:

a. If fall protection systems will be required.
b. If fall hazards exist, the types of conventional fall protection systems to be utilized. Particular attention will be given to anchorage points, location of warning lines, etc.
c. Rescue procedures to be used if a fall actually occurs.
d. The load-carrying capabilities of the walking/working surface.
e. Assuring that all personnel utilizing a fall protection system have training in that system.

This survey may be made without the use of fall protection because no work will be accomplished during this survey and installing fall protection systems would create a greater hazard.

If it is determined that certain areas within the overall worksite have fall hazards that cannot be addressed with conventional fall protection systems (those areas being limited to leading edge work, residential construction work, and precast concrete work), **then** a Fall Protection Plan must be prepared to specifically protect employees from these hazards.

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Guardrail System:

A guardrail system is a physical barrier erected to prevent employees from falling to lower levels.

Specific guardrail systems criteria are found in 29 CFR 1926.502(b) and we will erect guardrail systems that comply with the cited criteria.

The main advantage of a guardrail system is that it is a “passive” system which, once installed, requires no employee involvement in its function. A guardrail will stop an employee who inadvertently walks into it.

A guardrail system is an acceptable fall protection system in each of the OSHA designated work areas, except one: “Formwork and Reinforcing Steel.”

Guardrail Systems at Hoisting Areas:

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section will be placed across the access opening between the guardrail sections when hoisting operations are not taking place.

Note: If a portion of the guardrail system is removed at a hoisting area to facilitate the hoisting operations and an employee must lean out over the opening, then that employee must be protected by a personal fall arrest system. In this instance it is important to remember that the personal fall arrest system may not be attached to the guardrail system.

Guardrail Systems at Holes:

Guardrail systems used at holes will be erected on all unprotected sides of the edges of the hole.

When the hole is to be used for the passage of materials, the hole will not have more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it will be closed over with a cover or protected with a guardrail system on all unprotected sides or edges.

Note: Guardrails need not be erected around holes while employees are working at the hole, passing materials through the hole, etc. When work is completed around the hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Guardrail systems used around holes which are used as points of access (such as ladder ways) will be provided with a gate or be offset so that a person cannot walk directly into the hole.

Guardrail Systems on Ramps and Runways:

Guardrail systems used on ramps and runways will be erected along each unprotected side or edge. Ramps, runways, and other walkways on which employees need protection from falling 6 feet or more to a lower level must be protected by a guardrail system and only a guardrail system.

Person Fall Arrest System:

A personal fall arrest system is, as the name implies, a means of safely decelerating a falling body before a lower level is hit. The three (3) main components of a personal fall arrest system are the:

a. Anchorage point
b. Lanyard
c. Body harness

Note: Body belts will not be used in a personal fall arrest system.

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Specific personal fall arrest systems criteria are found in 29 CFR 1926.502(d) and we will use personal fall arrest systems that comply with the cited criteria.

The tie-off attachment point must be at or above the connection point on the harness to prevent additional free fall distance.

As are guardrails, personal fall arrest systems are “passive” and require no employee involvement once they are properly rigged.

For all practical purposes, d-rings and locking type snaphooks will have a minimum tensile strength of 5,000 pounds and lanyards and vertical lifelines will have a minimum breaking strength of 5,000 pounds. Anchorages must be capable of supporting 5,000 per employee.

Anchorages used in personal fall arrest systems must be independent of any anchorage being used to support or suspend platforms.

Note: Knots in a rope lanyard or lifeline can reduce its strength by as much as 50% and having a lanyard go over or around sharp edges can completely destroy its effectiveness.

With the exception that harnesses, and components may be used as positioning device systems, personal fall arrest system components may not be used for purposes other than that for which they were designed.

Positioning device system components will be inspected prior to each use for wear, damage, and other deterioration and defective components will be removed from service.

Should a personal fall arrest system actually be used to stop a fall, it will be removed from service and not used again until inspected and determined to be undamaged and suitable for reuse by a competent person.

Safety Net System:

Specific safety net systems criteria are found in 29 CFR 1926.502(c).

Safety nets will be installed as close as practical under the walking/ working surface on which employees are working and in no case will they be more than 30 feet below such level.

Safety nets will be inspected at least once per week and after an occurrence which could affect the integrity of the system. Defective nets will not be used.

All items that have fallen in a safety net will be removed as soon as possible and at least before the next work shift.

Safety nets will be drop-tested at the job site after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at six-month intervals if left in one place.

Note: If it is demonstrably unreasonable to perform a drop-test, a designated competent person will prepare a certification in accordance with 29 CFR 1926.502(c)(4)ii.

Warning Line System:

A warning line system is a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body harness, or safety net systems to protect employees in the area.

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A warning line system is to be used only during roofing work on low-sloped roofs over 50-feet in width with unprotected sides and edges 6-feet or more above lower levels (on a simple rectangular roof, width is the lesser of the two primary overall dimensions. This is also the case with roofs which are sloped toward or away from the roof center). Most importantly, warning line systems must be used in conjunction with either a guardrail system, a safety net system, a personal fall arrest system, or a safety monitoring system.

Note: In the above scenario, either a guardrail system, a safety net system, or a personal fall arrest system alone provides adequate fall protection.

Specific warning line systems criteria are found in 29 CFR 1926.502(f) and we will use warning line systems that comply with the cited criteria.

As a general rule, warning line systems will be used in conjunction with a safety monitoring system.

A warning line made of ropes, wires, chains, and supporting stanchions will be flagged at no more than 6-feet intervals with high-visibility material. As the name implies, this line will only "warn" employees that they are approaching an unprotected side or edge. The horizontal resisting force of a warning line is 16 pounds versus 200 pounds for a guardrail system.

No personnel are allowed in the area between a roof edge and a warning line unless they are performing roofing work in that area.

Mechanical equipment on roofs will only be used in areas that are protected by either a warning line system, a guardrail system, or a personal fall arrest system.

The warning line will be erected around all sides of the roof work area not less than 6-feet from the roof edge unless mechanical equipment is being used. In that case, the warning line will be erected not less than 6-feet from the roof edge which parallels the mechanical operation and not less than 10 feet from the roof edge which is perpendicular to the direction of the mechanical operation.

Points of access, material handling areas, storage areas, and hoisting areas will be connected to the work area by an access path formed by two warning lines. When the aforementioned areas are not in use, the warning line will be adjusted to completely seal off the work area so that a person cannot inadvertently enter the area.

Safety Monitoring System:

Specific safety monitoring systems criteria are found in 29 CFR 1926.502(h) and we will use safety monitoring systems that comply with the cited criteria.

A safety monitoring system used in conjunction with a warning line system is not considered a "passive system" because it takes active employee involvement and, as such, both the Safety Monitor and the employee(s) being monitored must be alert for fall hazards.

A competent person will perform the duties of Safety Monitor. These duties include:

a. Recognizing fall hazards,
b. Warning the employee when it appears the employee is unaware of a fall hazard or is acting in an unsafe manner,
c. Remaining on the same walking/working surface and within visual sighting of the employee being monitored, and
d. Remaining close enough to communicate orally with the employee being monitored.

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The Safety Monitor will have no other responsibilities which could take the monitor's attention from the monitoring function.

Only the employee engaged in roofing work on low-sloped roofs or an employee covered by a fall protection plan [29 CFR 1926.502(k)] is allowed in the area being protected by the Safety Monitor.

When a safety monitoring system is being used, mechanical equipment will not be used or stored in that controlled zone.

Of course, the employee being monitored is required to comply promptly with the fall hazard warnings from the Safety Monitor.

Positioning Device System:

A positioning device system consists of a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning. It is used during formwork and steel reinforcing.

Specific positioning device systems criteria are found in 29 CFR 1926.502(e) and we will use positioning device systems that comply with the cited criteria.

Positioning device systems must be inspected prior to each use for wear, damage, and other deterioration. Defective components must be removed from service. Components of positioning device systems must never be used for purposes other than that for which they were designed -- specifically fall protection and/or positioning on a vertical surface.

Controlled Access Zone (CAZ):

A controlled access zone is an area in which certain work activity may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Specific controlled access zone criteria are found in 29 CFR 1926.502(g). A controlled access zone will be created when appropriate.

Controlled access zones will only be used as part of a fall protection plan (reference 29 CFR 1926.502(k) and Fall Protection Plan, below) or when an employee is performing overhand bricklaying and related work. Persons performing overhand bricklaying or related work that requires reaching more than 10 inches below the walking/working surface may not be afforded fall protection by working in a controlled access zone.

Controlled access zones are work areas that have limited access to only authorized personnel by means of control lines or other means that restrict access.

Covers:

Covers can prevent an employee from stepping into a hole, tripping over a hole, falling through a hole, or being injured by objects falling through a hole.

Note: When work is completed around a hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Specific cover criteria are found in 29 CFR 1926.502(i) and we will use covers that comply with the cited criteria.

Covers must be capable of supporting, without failure, twice the weight of the employees, equipment, and/or materials that may be imposed upon them.

Covers, when used, must be secured to prevent accidental displacement by wind, equipment, or employees.

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All covers must be color coded or marked with the word: "HOLE" or "COVER" to identify the hazard.

Note: The above does not apply to cast iron manhole covers or roadway steel grates.

Covers, and only covers, will be used on walking/working surfaces to protect employees from tripping or stepping into or through a hole (including skylights). This provision is **regardless of the height** of the hole above a lower surface.

Covers, and only covers, will be used to protect employees from objects falling through holes (including skylights). This provision is **regardless of the height** of the hole above a lower surface.

Protection from Falling Objects:

Specific protection from falling objects criteria are found in 29 CFR 1926.502(j) and we will use that criteria to protect employees of LNE Electric from falling objects.

Covers are to be used to protect employees from objects falling through holes (including skylights) from upper surfaces regardless of heights.

Toeboards, used to prevent objects from falling on employees on a lower level must be at least 3½ inches high with not more than a ¼ inch clearance between the toeboard and the walking/working surface. When tools, materials, or equipment are piled higher than the top edge of the toeboard, paneling or screening will be erected from the top of the toeboard to the appropriate mid or top rail of the guardrail system to provide adequate protection to employees below.

Fall Protection Plan

The foregoing Fall Protection Program is not a Fall Protection Plan per se. However, implementing the preceding guidelines for conventional fall protection systems coupled with certified formal and hands-on training will provide appropriate fall protection for the employees at LNE Electric.

There may be occasions where conventional fall protection systems just will not work. OSHA has determined that these occasions will be limited to:

a. Leading edge work

   Note: Leading edge work involves construction which moves the location of the edge forward (backward). Working at the edge of a walking/working surface (such as a roof) is not leading-edge work - it is (roofing) work at an unprotected side or edge.

b. Precast concrete construction work

c. Residential construction work

The criteria for determination that conventional fall protection systems are infeasible are: 1) it is impossible to perform construction work using conventional fall protection systems, or 2) it is technologically impossible to use conventional fall protection systems. Inconvenience and cost are not acceptable considerations.

Specific Fall Protection Plan criteria are found in 29 CFR 1926.502(k) and, if necessary, a Fall Protection Plan will be completed that complies with the cited criteria.

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Fall Protection Plans must be prepared by a qualified person and developed specifically for the site where the work is to be performed. All changes to the Plan must be approved by a qualified person.

Note: A qualified person is one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project. OSHA has indicated that an employer may use the services of more than one qualified person to comply with these requirements as long as (1) those persons, collectively, are qualified to prepare the fall protection plan and approve any changes; and (2) the resulting plan complies with the applicable requirements of the standards.

Fall Protection Plans must be maintained at the job site and be up to date.

The implementation of the fall protection plan must be under the supervision of a competent person.

A Fall Protection Plan must document reasons why conventional fall protection systems are infeasible and/or offer a detailed explanation why conventional fall protection systems create a greater hazard in their use than non-use.

All measures taken to reduce or eliminate fall hazards (in lieu of conventional fall protection systems) such as the use of ladders or scaffolds will be discussed.

In each area where a conventional fall protection system cannot be used, a safety monitoring system must be utilized that conforms to the requirements of 29 CFR 1926(h).

Either the names of the employees or some other means of employee identification (such as armbands or color-coded hard hats) will be used to control access to the controlled access zone.

In the event an employee falls or a serious incident occurs, the circumstances will be investigated and changes to the Fall Protection Plan will be made to prevent a reoccurrence of a similar incident.

After completion of all work, and after all fall protection systems have been removed, a competent/qualified person may survey the work areas for inspection purposes without the use of fall protection systems. Care will be taken to assure solid footing and focused attention to potential fall hazards.

There are only two (2) instances where employees may be exposed to fall hazards without the use of fall protection systems. Those times are: pre-construction activities (inspecting, investigating, or assessing the job site) and post-construction activities. During these times, no actual construction work may take place.

Accidents and Near Accidents

Accidents and near accidents involving fall hazards will be investigated by Matt Landers to determine the cause of the incident and a method of preventing a reoccurrence. Questions to be considered are:

a. Was the fall protection system selected appropriate for the hazard?
b. Was the system properly installed?
c. Was the person involved in the accident following proper procedures?
d. Were there contributing factors such as ice, wind, debris, etc.?
e. Is retraining or a change of the Fall Protection Plan required?

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Training/Retraining

Training, which must be certified, will include the following topics:

a. The nature of fall hazards in the work area.
b. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection to be used.
c. 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.
d. The role of the Safety Monitor and the role of the employee when a safety monitoring system is used.
e. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.
f. The correct procedures for handling and storage of equipment and materials and the erection of overhead protection.
g. The role of employees in fall protection plans.

Training will be conducted by competent person(s) using the below listed items as resource materials:

a. This Fall Protection Program.
b. The manufacturer's instruction manuals that come with fall protection equipment.
c. OSHA standards pertaining to fall protection which are included in 29 CFR 1926 Subpart M.
d. The competent person's work experiences.

Should the competent person, a supervisor, or Matt Landers suspect that an employee lacks the skills needed for proper fall protection, that employee will be retrained.

Changes in the job site, types of fall protection systems, and equipment will also necessitate retraining.

Only the latest Training Certificate will be kept on file.

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Fall Protection at the Job Site

A quick glance through this Fall Protection Program may leave the reader with the impression that fall protection requires an inordinate amount of attention to small details which, in practice, would render the fall protection provisions of 29 CFR 1926 Subpart M unworkable in real work situations.

The opposite is true. OSHA has gone to great lengths to make subpart M user friendly by incorporating performance-oriented criteria (as opposed to specification-oriented criteria) into their standards. Following a hazard assessment, we will select the most advantageous fall protection system that is compatible with our task needs and our protection requirements.

Lastly, while time, equipment, training, and money are devoted to fall protection systems which either physically prevent persons from falling from height, control the rate of deceleration during an actual fall, prevent objects from falling onto persons below, or warn personnel of restricted areas, we must never forget that it is important not to fall in the first place.

Accidents are more likely to occur as we become “adjusted” to working at height. Most slips, trips and falls are preventable. Proper footwear, wearing hard hats when there is a possibility of falling objects, cleaning up of debris, and paying attention to footing, hand holds, and edges is as important as the fall protection systems themselves.

Residential Construction

Significant Changes from the Enhanced Enforcement Program (EEP)

This Instruction cancels OSHA Instruction STD 03-00-001, dated June 18, 1999, the Agency's interim enforcement policy on fall protection for specified residential construction activities, and replaces it with new compliance guidance.

Employers engaged in residential construction who wish to use alternative fall protection measures must meet the requirements in 29 CFR 1926.501(b)(13) and 29 CFR 1926.502(k).

Fall protection plans used to comply with 29 CFR 1926.501(b)(13) and 29 CFR 1926.502(k) must be documented and site-specific.

This instruction interprets "residential construction" for purposes of 29 CFR 1926.501(b)(13) to include two elements: (1) a residence requirement; and (2) a wood frame construction requirement.

ENFORCEMENT DATE : June 16, 2011

29 CFR 1926.501(b)(13) :

Each employee engaged in residential construction activities 6 feet (1.8 m) or more above lower levels will be protected by guardrail systems, safety net system, or personal fall arrest system unless another provision in paragraph (b) of this section provides for an alternative fall protection measure. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer will develop and implement a fall protection plan which meets the requirements of paragraph (k) of 1926.502.

Note: There is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with 1926.502(k) for a particular job site situation, in lieu of implementing any of those systems.

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29 CFR 1926.502(k):

"Fall protection plan." This option is available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work (See 29 CFR 1926.501(b)(2), (b)(12), and (b)(13)), who can demonstrate that it is infeasible, or it creates a greater hazard to use conventional fall protection equipment. The fall protection plan must conform to the following provisions.

a. The fall protection plan will be prepared by a qualified person and developed specifically for the site where the leading-edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.
b. Any changes to the fall protection plan will be approved by a qualified person.
c. A copy of the fall protection plan with all approved changes will be maintained at the job site.
d. The implementation of the fall protection plan will be under the supervision of a competent person.
e. The fall protection plan will document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) are infeasible, or why their use would create a greater hazard.
f. The fall protection plan will include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems. For example, the employer will discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling.
g. The fall protection plan will identify each location where conventional fall protection methods cannot be used. These locations will then be classified as controlled access zones and the employer must comply with the criteria in 29 CFR 1926.502(g) of this section.
h. Where no other alternative measure has been implemented, the employer will implement a safety monitoring system in conformance with 29 CFR 1926.502(h).
i. The fall protection plan must include a statement which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones.
j. In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer will investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and will implement those changes to prevent similar types of falls or incidents.

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LNE Electric

Fall Protection Plan

(Required when standard fall protection systems are not feasible)

With changes: _____

(If no changes, enter "None")

This Fall Protection Plan is specific for the following project:

Project Name: _____

Location of Job: _____

_____

Date Plan Prepared: _____ by: _____

(Must be a Qualified Person)

Date Plan Modified: _____ by: _____

(Must be a Qualified Person)

Date Plan Modified: _____ by: _____

(Must be a Qualified Person)

Plan Approved by: _____

Plan Supervised by:_____

Policy Statement

Our Fall Protection Program has been developed to protect our employees from the easily identifiable danger associated with working at height: falling. While the general concept of Fall Protection is straight forward, those employees to whom this Program applies must have specific training applicable to their individual jobs. It is recognized that the nature of fall hazards may vary from project to project & even change during a specific project. Training will be on-going to reflect the various existing work situations.

A copy of our Fall Protection Program can be found in the main office at:

9260 Sw 146th Terr #8

Beaverton, OR, 97007

9713928688

A copy of our Fall Protection Plan will be found on every applicable Job Site.

Fall Protection Systems to be used on this Job

All employees on this job/project will be protected from fall hazards by the use of one or more conventional fall protection systems. These systems include guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, warning line systems, controlled access zones, safety monitoring systems, covers, and protection from falling objects.

Further, the conventional fall protection system used in each required circumstance will be in compliance with 29 CFR 1926.502 which addresses which systems are appropriate (allowed) for specific types of work.

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Training

All our personnel working on this job/project have received training in our Fall Protection Program and are able to recognize fall hazards and understand procedures to minimize these hazards. Further, they have been trained, as necessary, by a competent person qualified in the following areas using both formal and hands on training:

a. The nature of fall hazards in the work area.
b. The procedures for erecting, maintaining, disassembling, and inspecting the fall protections to be used.
c. 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.
d. Their role in the safety monitoring system when this system is used.
e. The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs.
f. The procedures for handling and storage of equipment and materials and the erection of overhead protection.
g. The roll of employees in fall protection plans.

Enforcement

Awareness of and respect for fall hazards, and compliance with all safety rules are of great importance. Appropriate disciplinary action will be taken should an employee disregard our safety guidelines.

Accident Investigation

All accidents that result in injury to employees, regardless of their nature, will be investigated and reported. It is important that documentation of accidents take place as soon as possible so that the cause may be determined, and steps may be taken to prevent a reoccurrence.

Changes to this Plan

Changes to this plan, specifically a deviation from conventional fall protection systems, will be documented by a qualified person whose name appears on the front of this fall protection plan.

Changes will be limited to:

a. Leading edge work

Note: Leading edge work involves construction which moves the location of the edge forward (backward). Working at the edge of a walking/working surface (such as a roof) is not leading-edge work - it is (roofing) work at an unprotected side or edge.

b. Precast concrete construction work
c. Residential construction work

The criteria for determination that a conventional fall protection is infeasible is that it is impossible to perform construction work with a conventional fall protection system or it is technologically impossible to use a conventional fall protection system. Inconvenience and cost are not acceptable considerations. Specific Fall Protection Plan criteria are found in 29 CFR 1926.502(k) and we will, if necessary, create a Fall Protection Plans that comply with the cited criteria. A separate change will be made for each situation where conventional fall systems cannot be used.

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LNE Electric

Changes to Fall Protection Plan

CHANGE NUMBER: _____

This change to the Fall Protection Plan for the below listed project will be attached to the original Fall Protection Plan and a copy will be available at the job site.

Project Name: _____

Location of Job: _____

Date Change Prepared: _____ by: _____
(Must be a Qualified Person)

Date Change Prepared: _____ by: _____
(Must be a Qualified Person)

Change Approved by: _____

Change Supervised by: _____

Reference the above.

Changes to this Fall Protection Plan for the following reason(s):

Specific work that requires fall protection other than conventional fall protection:

_____
_____
_____
_____
_____
_____
_____
_____
_____

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Specific work areas where the above work will take place:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Before any non-conventional fall protections are used as part of the work plan, a controlled access zone (CAZ) will be clearly defined by the competent person_____ as an area where a

(Name(s) of Competent Person)

recognized hazard exists. The demarcation of the CAZ will be communicated by the competent person in a recognized manner such as:

Circle one or more of the below:

a. signs
b. wires
c. tapes
d. ropes
e. chains
f. other : _____

All access to the CAZ will be restricted to authorized entrants. Those entrants will be identified by _____

(Color hard hats; arm bands, etc.)

and are listed below:

_____ _____ _____

_____ _____ _____

_____ _____ _____

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The competent person will ensure the protective elements of the CAZ are implemented prior to the beginning of work.

Specific reasons why conventional fall protection is either infeasible or creates a greater hazard:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Specific measures to be taken to reduce or eliminate fall hazards for personnel who cannot be provided conventional fall protection:

_____
_____
_____
_____
_____
_____
_____
_____
_____

In the above CAZ, a safety monitoring system will be implemented in conformance with 29 CFR 1926.502(h).

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LNE Electric

Safety Net Installation Certification

This is to certify that the Safety Net identified below was installed with sufficient clearance under it to prevent contact with the surface or structures below when subjected to an impact force equivalent to the drop test specified in 29 CFR 1926.502(c)(4)(i).

Safety Net Make: _____

Safety Net Model: _____

Safety Net Location: _____

It was found to be unreasonable to perform the below listed drop test for the following reasons:

_____
_____
_____
_____
_____

Drop Test (Circle appropriate drop test to which the certification applies):

a. After initial installation and before using drop test.

b. After relocation drop test.

c. After major repair drop test.

d. After remaining in the same location for 6 months drop test.

_____ _____

(Competent Person) **(Date)**

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Forklifts

29 CFR 1910.178 - Powered Industrial Trucks

Overview

Forklifts are designed to move items quickly, safely, and cleanly. Forklift training would also apply to numerous types of powered industrial trucks such as: tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

While many safety features are designed into forklifts, accidents still happen, and they are generally the result of operator error. There is a general agreement among safety professionals, as well as OSHA, that requiring training for all persons (including part-time, seasonal, and temporary employees) who operate forklifts will significantly reduce the accident and injury rates.

This program has been developed to make our truck operators aware of the hazards associated with motorized truck use as well as to provide guidance for safe truck operations.

Persons will be authorized to operate our forklifts only after they have successfully demonstrated their understanding of proper procedures for truck inspection, use, and refueling/recharging. Operators will demonstrate their truck knowledge and abilities by passing a written test and performing designated truck maneuvers. All truck operators will be evaluated by Matt Landers, our Forklift Program Administrator, or a designated competent person.

Because of their power, weight, size, restricted visibility, and, often, high center of gravity, operation of industrial trucks takes skill and attention to detail. One moment of inattention can lead to a major mishap in an instant. Additionally, the load presents potential hazards if not properly secured, balanced, and/or properly placed on the truck.

In accordance with 29 CFR 1910.178(b)12, Matt Landers, or other competent person will determine whether the atmosphere or location in which our industrial trucks will operate is hazardous or non-hazardous and, after further assessing our needs, will determine which types of trucks are appropriate and allowed for our specific operations.

In the unlikely event that unsafe industrial motor truck operations are observed, retraining will be given with emphasis on correcting the improper behavior. To prevent the possibility of severe injury to the operator (or a bystander), our forklifts must be operated in a professional manner and anything less will not be tolerated. All truck operators will have ready access to this program, appropriate OSHA standards, and the truck owner/operator manuals.

General Requirements

All truck operators must be thoroughly familiar with the truck, itself. This includes knowing:

a. Instinctively, what each and every control does.
b. How to perform a truck safety check.
c. The truck's limitations such as maximum load, height and width, visibility, stability, and surface requirements.
d. The truck's stopping and turning ability and its effect on loads.

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The below safety rules and guidelines to which one must adhere while operating a forklift have been established. These rules are designed to protect the operator and/or persons adjacent to truck operations.

Specifically:

a. No person will operate one of trucks unless authorized in writing.
    1. Prior to authorization, the operator will have read this program, received training, passed a quiz on truck operations, and been evaluated on operational skills.
    2. Authorization to operate one type of truck does not automatically authorize a person to operate all trucks. Different power sources, visibility restrictions, controls, & capacities may dictate, in the judgment of Matt Landers, that a separate certification process may be required for a different type of truck. There may be instances where a new vehicle does not necessitate new training and a demonstration of proficiency. A newer model of a currently used truck may be identical to the truck the operator is qualified on as far as safety & operations are concerned. As a general rule, each **type** of truck has its own characteristics, limitations, and idiosyncrasies -- each **model** of a type of truck may or may not be unique.
b. No riders are allowed on forklift unless:
    1. The truck is specifically designed for such use.
    2. The rider is authorized by Matt Landers.

        Note: Forklifts are generally designed to move product, supplies and equipment, not personnel.
c. Matt Landers will revoke the authority to operate a truck if unsafe acts are observed or it is apparent that the operator as not retained the knowledge and job skills necessary to safely perform truck operations.
    1. An operator who has lost his authorization to operate a truck will be retrained, reevaluated, and, if appropriate, re-certified.
d. At the beginning of each shift, the operator will inspect the truck using our Forklift Daily Checklist.
    1. If deficiencies relating to safety are found, the deficiencies will be noted on the Checklist and reported to Matt Landers, or other designated person. The vehicle will not be used until safety defects are repaired.
    2. If cosmetic damage is discovered during the daily check, it will be noted on the Checklist, but the truck will be used. Cosmetic faults will not delay our operations.

Hazards

The major personal safety hazards involved in truck operation include:

a. Physically hitting a person/object with the truck or load.
b. Having a load fall and hit the operator or other person.
c. Having the truck tip and crush the operator or other person.
d. Fire or explosion during refueling/recharging.

Below are rules & guidelines to control the hazards identified & reduce the likelihood of accident/injury. While some of the procedures may seem too obvious to mention or just plain common sense, remember this —serious, even fatal, accidents have occurred because for one split second an operator forgot or ignored a basic safety rule.

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Falling/Hitting a Person/Object:

a. Never drive up to a person standing in front of a fixed object.
b. When possible, stay within delineated travel lanes or aisles.
c. Be seen and/or heard.
d. Ensure that adequate lighting is available.
e. Maintain a clear view of travel. If the load blocks or restricts the view, the operator will drive with the load trailing (backwards).
f. Slow down, sound horn, and do not pass where vision is restricted.
g. Operate the truck at speeds that will allow it and the load to be stopped in a safe, smooth, manner.
h. Be aware of floor conditions. Remove loose objects that have found their way to the truck travel lanes. Operate the truck at slower speeds on wet or slippery floors.
i. Of course, stunt or reckless driving is prohibited.
j. Be aware of the height of the truck and, if equipped, its mast and load. Carelessness can damage ceiling, lights, pipes, etc.
k. Never allow anyone to stand or pass under an elevated portion of any truck at any time.

Falling Loads:

a. Know your load – do not "over stack." Because practically all loads lifted or hauled by a forklift are not secured to the truck, ensure the load is properly stacked. Cartons generally should be interlaced or banded.
b. If lifting a load or pallet, get the forks (or other engaging means) as far under the load as possible.
c. Travel with the load in the lowest position for stability as well as prevention of hitting objects overhead. If using forks, tilt the load backward for stabilization.
d. Do not exceed the truck's rated capacity or stack loads too high.
e. Do not make "jerky" movements such as slamming the brakes or high-speed turns.
f. A load backrest extension will reduce the possibility of part of the load falling rearward.
g. When using a forklift, the forks may be tilted forward only for picking up or setting down a load.

Tipping:

Forklifts are, by design, narrow allowing them greater access within the work setting. Unfortunately, a narrow track offers less stability. Tipping or falling off an edge (or dock) is a preventable accident by following the guidelines below. If your truck tips, keep your body and limbs within the safety of the cage. Wear a seat belt if the truck is so equipped.

a. Stay within travel lanes.
b. If entering a trailer, ensure:
    1. The trailer brakes are engaged.

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2. The trailer is secured from movement by means of chocks and/or a locking mechanism.
3. The tractor is either shut off or removed from the trailer.
4. The trailer is squared up with the dock opening and dock plates are secure.
5. The trailer floor is capable of supporting the forklift and its load.
6. The lighting within the trailer is adequate.

Note: Falling off a dock edge because a trailer has moved is invariably a serious accident. Do not count on the tractor-trailer driver to lock his brakes or even trust that his brakes work. Physically check and ensure that the trailer into which you are taking your forklift is flush against the dock. If possible, the trailer should be actually attached to the dock, but in all cases, it should be chocked.

c. Travel with the load in the lowest possible position and avoid sharp turns at higher speeds as well as abrupt truck movements.
d. Be aware of the surface on which you are traveling -- its traction, ability to hold weight, slope, and surface.

Fire/Explosion during Refueling/Recharging:

Refueling accidents are not common experiences, however, should they occur, they would be sudden and possibly catastrophic. Follow the manufacturer's owner's manual and local fire laws.

a. There is absolutely NO SMOKING or open flame during any portion of the refueling/recharging process.
b. Per 29 CFR 1910.110, *Storage and handling of liquefied petroleum gases*, paragraph (f)(7), at least one approved portable fire extinguisher having a minimum rating of 8-B, C must be readily available when refueling propane.
c. Facilities for quick drenching of the eyes and body must be readily available.

Other Concerns

The program deals primarily with the personal safety of forklift operators at LNE Electric. However, when discussing truck operations, we would be remiss if it were not pointed out that improper truck operations could also result in physical damage to products, trucks, and/or facilities. Proper truck operation will reduce personal injury accidents, and, as an added benefit, prevent general damage.

Operator Protection

A hazard assessment of forklift operations will be conducted by . Particular attention will be given to hand, head, eye, and foot protection, as well as environmental conditions such as atmospheres, heat, or cold. If the truck is equipped with a seat belt, it must be worn when the truck is moving.

Keep your limbs within the running lines of the truck and keep your hands and fingers away from moving parts -- particularly the mast on a forklift truck.

will perform a hazard assessment of the truck operations and determine what, if any, personal protective equipment (PPE) requirements are appropriate. If PPE (examples: steel toed boots, leather gloves, hard hat, eye protection, etc.) is required, it must be worn.

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Forklift Operations

In addition to safety operating practices previously identified in this manual, the following will be considered general operating procedures:

a. Fire aisles, access to stairways, and fire equipment must be kept clear.
b. Operators leaving their trucks must ensure the load is fully lowered, controls neutralized, and brakes set. On an incline, the wheels must be blocked. If the operator is 25 feet or more from the truck or does not have a clear view of the truck, the power to the truck must be shut off.
c. A safe distance will be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car.
d. Trucks will not be used for opening or closing freight doors.
    1. Trucks, like all items of equipment, will be used for the purpose for which they were designed.
e. Be aware that if the operator of a semi-trailer has placed the rear wheels in a far forward position, the trailer may act as a “teeter-totter” when a heavy forklift enters the trailer. When a trailer is not coupled to a tractor, fixed jacks may be necessary to support the semi-trailer during loading or unloading.
f. Be aware that the overhead guard (used as protection against falling objects) is designed to prevent injury from the impact of small packages, boxes, bagged material, etc. -- it is not necessarily designed to withstand the impact of a falling capacity load.
g. In the event persons are lifted by a truck, a lifting platform must be securely attached to the lifting mechanism and the persons on the safety platform must have means of shutting off power to the truck.
h. If more than one truck is operated, they must be separated by a safe distance (at least three truck lengths) and they may not pass each other in intersections, blind spots, or other dangerous locations. The right of way will be yielded to other trucks in emergency situations.
i. Trucks traveling in the same direction will not be passed at all.
j. Driving on grades:
    1. Grades will be ascended or descended slowly.
    2. When ascending or descending grades in excess of 10 percent, loaded trucks will be driven with the load upgrade.
k. Motorized hand trucks must enter confined areas with the load end forward.

Maintenance

While the operator is responsible for checking the truck before use, actual mechanical maintenance must be performed by an authorized person.

a. If at any time a forklift is found to be in need of repair, defective, overheating, or in any way unsafe, the truck will be taken out of service until it has been restored to safe operating condition.
b. Forklifts should be kept reasonably clean and free of excess oil and grease.

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Duties of the Forklift Program Administrator

The duties of Matt Landers, our Forklift Program Administrator include:

a. Operator training and certification.
b. Hazard assessment of our truck operations.
c. Identification of truck operators who, through their performance have demonstrated a lack of retained knowledge or ability to safely operate a powered truck. These people will receive retraining.
d. Keeping up-to-date of developments in the materials handling field with an emphasis on safety.

Additionally, the administrator will ensure that all truck operators have ready access to 29 CFR 1910.178, *Powered Industrial Trucks*, this program, and the individual truck's Operator/Owner Manual.

Training

Matt Landers will administer the training portion of this program.

Interactive training will be given by a competent (one with knowledge, training, and experience) person with ample opportunity to ask questions and clarify all aspects of truck operation relating to safety.

Prior to actual truck operation on the job, all truck operators will become familiar with the contents of this program as well as the operator's manual applicable to the specific powered truck they will operate. Each operator will demonstrate an understanding of truck operations and complete a driving test which will include truck inspection, maneuvering, and fueling/charging.

New truck operators may operate powered trucks in a training capacity:

a. When they are under the direct supervision of persons who have the knowledge, training, and experience to train and evaluate their competence.
b. Where such operation does not endanger themselves or others.

Matt Landers will ensure that all truck operators have a complete understanding of the below listed topics:

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Truck-Related Topics:

a. Operating instructions, warnings, and precautions for the type of truck the operator will be authorized to operate.
b. Differences between the truck and the automobile.
c. Truck controls and instrumentation: where they are located, what they do, and how they work.
d. Engine or motor operation.
e. Steering and maneuvering.
f. Visibility (including restrictions due to loading).
g. Fork and attachment adaptation, operation, and use limitations.
h. Vehicle capacity.
i. Vehicle stability.
j. Any vehicle inspection and maintenance that the operator will be required to perform.
k. Refueling and/or charging and recharging of batteries.
l. Operating limitations.
m. 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.

Work-Related Topics:

a. Surface conditions where the vehicle will be operated.
b. Composition of loads to be carried and load stability.
c. Load manipulation, stacking, and unstacking.
d. Pedestrian traffic in areas where the vehicle will be operated.
e. Narrow aisles and other restricted places where the vehicle will be operated.
f. Hazardous (classified) locations where the vehicle will be operated.
g. Ramps and other sloped surfaces that could affect the vehicle's stability.
h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
i. Other unique or potentially hazardous environmental conditions in the work area that could affect safe operation.

Refresher Training in relevant topics will be provided to the operator when:

a. If unsafe truck operations are observed.
b. After an accident or near-accident.
c. Operator has received an evaluation that reveals that the operator is not operating the truck safely
d. If the operator is to be assigned to drive a different type of truck.
e. If work area changes could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance must be conducted at least once every three years and refresher training will be provided as needed.

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Use of Forklifts to Support Scaffold Platforms

Per 29 CFR 1926.451(c)(2)(v), if deemed appropriate, forklifts may be used to support scaffold platforms with the following conditions:

a. The forklift will be designed for such use as indicated either:
    1. In the owner's manual, or
    2. By a letter from the manufacturer allowing such use, or
    3. Certification by a registered engineer that the forklift is so designed.
b. The entire scaffold platform is securely attached to the forks.
c. The forklift is not moved horizontally while the platform is occupied.
d. The platform (and machine) meets the requirements of 29 CFR 1926.451 for capacity, construction, access, use, and fall protection.
    1. If the platform is not designed by the manufacturer of the forklift, it must be designed by a qualified person.
    2. The forklift must be capable of supporting, without failure, its own weight and at least four times the maximum intended load.
e. The platform for elevating personnel must not extend more than 10 inches beyond the wheelbase of the machine in use.
f. The employees on the platform must be able to have travel and power controls at the platform level.
    1. This requirement is fulfilled by having the forklift operator remain with the forklift while personnel are on the platform.
g. The use of a forklift to support a scaffold platform will be used only after a determination that the use of other equipment such as scaffolds, scissor lifts, aerial lifts, and ladders is not practical.

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Hazard Communication

29 CFR 1910.1200, Hazard Communication
29 CFR 1910.1200 Appendix A, Health Hazard Criteria (Mandatory)
29 CFR 1910.1200 Appendix B, Hazard Determination (Mandatory)
29 CFR 1910.1200 Appendix C, Allocation of Label Elements (Mandatory)
29 CFR 1910.1200 Appendix D, Safety Data Sheets (Mandatory)
29 CFR 1910.1200 Appendix E, Definition of "Trade Secret" (Mandatory

Purpose

The purpose of our hazard communication program is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to our employees. The provisions of our hazard communication program are consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of our comprehensive hazard communication program.

We will develop, implement, and maintain **at each workplace** a comprehensive written hazard communication program for our employees which includes container labeling and other forms of warning, safety data sheets and employee training.

Note: Where employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer will ensure that employees can immediately obtain the required information in an emergency.

Hazard communication applies to any hazardous substance which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a reasonably foreseeable emergency resulting from work place operations.

LNE Electric will maintain a list of the hazardous substances known to be present using an identity that is referenced on the appropriate safety data sheet (SDS). This list may be compiled for the workplace as a whole or for individual work areas.

Manufacturers and importers will obtain or develop a safety data sheet for each hazardous substance they produce or import. We will obtain from the manufacturer or seller an SDS of each hazardous substance which we use and maintain these SDS at the workplace.

As a matter of course, before a new product is purchased, we will review its SDS to determine the presence of carcinogenic or other extremely hazardous chemicals. Using this information from the SDS, we will be able to inform employees how they will be protected from carcinogens at the workplace.

As a matter of course, before a new product is purchased, we will review its SDS to determine the presence of carcinogenic or other extremely hazardous chemicals. Using this information from the SDS, we will be able to inform employees how they will be protected from carcinogens at the workplace. Prior to performing a non-routine task (for example, the cleaning of reactor vessels), an employee will be given information by a competent person or supervisor concerning the hazardous chemicals to which he may be exposed.

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This information will include:

a. Specific chemical hazards
b. Protective/safety measures the employee is to use.
c. Measures taken to lessen the hazards including ventilation, respirators, presence of another employee and emergency procedures.

Should work activities be performed in areas where chemicals are transferred through unlabeled pipes, a safety meeting will be held by the competent person or supervisor to inform employees of:

a. The chemical in the pipes.
b. Viscosity, pressure, heat.
c. Potential Hazards.
d. Safety precautions to be taken.

In multi-employer workplaces, our written hazard communication program will include the methods we will use to inform any other employers sharing the same work area of the hazardous chemicals to which their employees may be exposed while performing their work, and any suggestions for appropriate protective measures, including the following:

The competent person on the job site will inform those with whom we work of any hazardous chemical products we are using and will provide them with the appropriate SDS for their review. SDS for all chemical products used on the job site will be readily available. Should we introduce a new chemical product to the job site that contains a physical or health safety hazard, the product's SDS will accompany that product and, before use, employees will be given instruction on the products hazards. This information will be shared with other contractors with whom we may be working. Employees are to be kept informed of the chemical products being used by other contractors if they pose a safety hazard.

Labels and Other Forms of Warning

The manufacturer, importer, or distributor will ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked. Where the manufacturer or importer is required to label, tag or mark the following information will be provided:

a. Product identifier;
b. Signal word;
c. Hazard statement(s);
d. Pictogram(s);
e. Precautionary statement(s); and,
f. Name, address, and telephone number of the manufacturer, importer, or other responsible party.

The manufacturer or importer preparing the safety data sheet will ensure that the information provided accurately reflects the scientific evidence used in making the hazard determination. If the manufacturer or importer, become aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information will be added to the safety data sheet within three months.

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If the chemical is not currently being produced or imported, the manufacturer or importer will add the information to the safety data sheet before the chemical is introduced into the workplace again. We will replace safety data sheets with updated copies as they are received.

Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

Example below for labeling:

We may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable & conveys the information required by the above to be on a label. The written materials will be readily accessible to the employees at LNE Electric in their work area throughout each work shift. We may use such written materials in lieu of affixing labels to individual containers as long as the alternative method identifies & accompanies the containers to which it is applicable & conveys the information required to be on a label.

We **are not required** to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. We will not remove or intentionally deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

We will ensure that workplace labels or other forms of warning are legible, in English, & prominently displayed on the container, or readily available in the work area throughout each work shift. If we have employees who speak languages other than English, we will add the information to the presented material translated to the appropriate language & the information will be presented in their language.

Note: OSHA pictograms do not replace the diamond shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks, or other containers. Those labels must be on the external part of a shipped container & meet the DOT requirements set forth in 49 CFR 172, Subpart E.

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Employee Information and Training

We will provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard is introduced into their work area. Information and training may relate to general classes of hazardous chemicals to the extent appropriate and related to reasonably foreseeable exposures of the job. Chemical-specific information must always be available through labels and safety data sheets.

Information and training will consist of at least the following topics:

a. Employees will be informed of the requirements of 29 CFR 1910.1200, Hazard Communication, and its appendices.
b. Employees will be informed of any operations in their work area where hazardous chemicals are present.
c. Employees will be informed of the location and availability of the written hazard communication program, including the list(s) of hazardous chemicals and safety data sheets required by this section.
d. Employees will be trained in the methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as conducting specific monitoring, using continuous monitoring devices, learning the visual appearance or odor of hazardous chemicals when being released, etc.).
e. Employees will be trained in the physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area, and the measures they can take to protect themselves from these hazards, including specific procedures the we have implemented to protect our employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.
f. Our employees will be trained in the details of our hazard communication program, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer and the safety data sheet, and how our employees can obtain and use the appropriate hazard information.

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Documentation of Training

Documentation of safety and health training will be maintained for at least one (1) year.

Documentation will include:

a. employee name or another identifier
b. training dates
c. type(s) of training
d. training providers

Employees will be informed of the right:

a. To personally receive information regarding hazardous substances to which they may be exposed, according to the provisions of this section;
b. For their physician or collective bargaining agent to receive information regarding hazardous substances to which the employee may be exposed according to provisions of this section;
c. Against discharge or other discrimination due to the employee's exercise of the rights afforded pursuant to the provisions of the Hazardous Substances Information and Training Act.

Whenever we receive a new or revised safety data sheet, such information will be provided to employees on a timely basis not to exceed 30 days after receipt, if the new information indicates significantly increased risks to, or measures necessary to protect, employee health as compared to those stated on a safety data sheet previously provided.

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LNE Electric

Request for Safety Data Sheets

To:

LNE Electric

9260 Sw 146th Terr #8
Beaverton, OR, 97007
9713928688

_____

(Date)

_____

(Supplier)

_____

(PO Box/Street Address)

_____

(City, State, ZIP)

To whom it may concern:

On _____, we received a shipment of _____,
(Date) **(Product Name)**

reference invoice: _____.
(Invoice Number)

The above product was received without an accompanying Safety Data Sheet (SDS). Per 29 CFR 1910.1200, we are unable to use this product without its SDS.

Please furnish the appropriate SDS as soon as possible to:

Thank you,

_____

Matt Landers
Safety Director

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LNE Electric

List of Hazardous Chemicals

The Safety Data Sheets for the below listed Hazardous Chemicals will follow this list. The Safety Data Sheets are arranged in the order listed below:

Chemicals

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Lockout/Tagout - Control of Hazardous Energy

29 CFR 1910.147 - The Control of Hazardous Energy (Lockout/Tagout)
29 CFR 1910.333 - Selection and Use of Work Practices

Overview

As a contractor, we would not be involved in normal production operations. We could, however, be involved in the constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing with the possibility of injury due to the unexpected energization, start up, or release of stored energy. During these situations, we will comply with the provisions of 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)* and 29 CFR 1910.333, *Selection and Use of Work Practices,* the standards on which this program is based.

Coordination will be established between the client and, if appropriate, subcontractors to clearly indicate who is responsible for what function of the program, as well as the identifying characteristics of the lockout/tagout devices, shape, color, color codes for locks and tags, if used.

Coordination is required because – for example: an employee of LNE Electric may complete lockout/tagout procedures and perform maintenance on a fixed piece of equipment while a client's employee is affected by that work. All employees at LNE Electric affected by this program will be "authorized employees" by virtue of their work (see "Definitions" below.)

Definitions

There are a number of terms and phrases which must be understood by all employees to grasp the general thrust of this Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of Control of Hazardous Energy.

Affected Employee means an employee whose job requires him/her to operate or use a machine or equipment on which servicing, or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized Employee means a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing service or maintenance covered under 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*.

Note: An authorized employee is authorized to service only machines and equipment with which he/she is familiar by training and/or experience.

Capable of being Locked Out means an energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized means connected to an energy source or containing residual or stored energy.

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Energy Isolating Device means a mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy Source means any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Fixed Equipment means equipment fastened in place or connected by permanent wiring methods.

Hot Tap means a procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout means the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device means a device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal Production Operation means the utilization of a machine or equipment to perform its intended production function.

Other Employees means those employees whose work operations are or may be in an area where energy control procedures may be utilized.

Servicing and/or Maintenance means job site activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of equipment or release of hazardous energy.

Setting Up means any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout means the placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device means a prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

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Applicability

The provisions of this program apply when there is a possibility of injury due to the unexpected energization, start up, or release of stored energy while constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing fixed machinery. Stored energy in an electro/mechanical system can be found in rotating flywheels, weights and counterweights, hydraulic and pneumatic pressure, thermal and chemical energy, springs, and unbalanced loads.

This program does not apply to:

a. Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.
b. Hot tap operations provided:
    1. Continuity of service is essential.
    2. Shut down of the system is impractical.
    3. Documented procedures are followed and special equipment is used which will provide proven effective protection for employees.

Procedures for Control of Hazardous Energy

The general procedures for lockout, tagout, or lockout and tagout are quite similar. Below are instructions which apply to all control of hazardous energy procedures. Exceptions and specific requirements for lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout are noted in their own subchapters.

General Procedures

Note: Throughout this section, lockout/tagout refers to lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout.

Purpose and Scope: Effective hazardous energy control procedures will protect employees during machine and equipment servicing and maintenance where the unexpected energization, start up or release of stored energy could occur and cause injury. Further, effective hazardous energy control procedures will protect employees when working near or on exposed de-energized electrical conductors and parts of electrical equipment. Hazards being guarded against include, but are not limited to, being cut, struck, caught, crushed, thrown, mangled, and/or shocked by live electrical circuits caused by the unexpected release of hazardous energy. One (1) piece of machinery can have more than one (1) real or potential source of hazardous energy that must be guarded against.

These procedures for the control of hazardous energy will ensure that machines and equipment are isolated properly from hazardous or potentially hazardous energy sources during servicing and maintenance and properly protected from re-energization as required by 29 CFR 1910.147.

While any employee is exposed to contact with parts of fixed electrical equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out and/or tagged in accordance with the requirements of 29 CFR 1910.333 (b)(2).

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Preparation for Shutdown: Prior to lockout/tagout, all energy isolating devices must be located which apply to the specific machine in question. **There may be more than one energy source**. While electrical is most common, other sources could be hydraulic, pneumatic, chemical, thermal, rotational, spring, etc. All must be isolated. The Energy Source Evaluation Form & the Control Procedures Form must be completed prior to isolation. These forms must be completed by an authorized employee. Once completed, it is recommended that these evaluations remain on file for future use. Any changes in design or energy hazard will require an update of these forms. Not only the energy source hazard, but its magnitude must be recorded on the Energy Source Evaluation Form. Example: Energy Source: Pneumatic. Magnitude: 125 psi.

Before an authorized or affected employee turns off the piece of equipment, the authorized employee must have knowledge of the type and magnitude of the energy to be controlled and the methods or means to control the energy. Refer to the Control Procedures Form for specific energy control procedures.

Machine or Equipment Shutdown: Before lockout/tagout controls are applied, all affected employees will be notified and given the reasons for the lockout/tagout.

If a machine or equipment is operating, it will be shut down by normal stopping procedures by either the affected or authorized employee.

Lockout/Tagout Device Application: Authorized employees will lockout/tagout the energy isolating devices with assigned individual locks. Locks or other lockout/tagout devices will be color coded and will be used for no other purpose. Lockout/tagout devices will indicate the identity of the authorized employee applying the device.

Lockout/tagout devices will be durable and capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected. They will be standardized in color and be substantial enough to prevent their removal without the use of excessive force or unusual techniques such as bolt cutters or other metal cutting tools. Key or combination locks are acceptable. Tagout device attachments will be non-reusable, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds. The tagout attachment will have the general design and basic characteristics of, at a minimum, a one-piece, all environmental tolerant nylon cable tie.

Lockout/tagout devices will be applied so that they will hold the energy isolating devices in a "Neutral" or "Off" position. Protective materials and hardware will be provided for isolating, securing or blocking of machines or equipment from energy sources. These protective materials and hardware include, but are not limited to, locks, tag chains, wedges, key blocks, adapter pins, self-locking fasteners, etc.

Release of Stored Energy: All stored energy will be blocked or dissipated. Types of stored energy include flywheels, springs, hydraulic or pneumatic systems, etc. Should there be a possibility of re-accumulation of stored energy, verification of isolation must be continued until servicing is complete.

Verification of Isolation: Prior to starting work on machines or equipment that have been locked out & after ensuring that no personnel are exposed to the release of hazardous energy, the authorized employee will operate the normal operating controls to verify that the machine or equipment has been de-energized & that it will not operate. After the above test, the operating controls will be returned to the "NEUTRAL" or "OFF" position. At this point, the machine/equipment is now locked out. The work may proceed.

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Release from Lockout/Tagout: Before the lockout/tagout devices are removed and energy is restored to the machine or equipment, the following procedures will be implemented to ensure the safety of everyone involved:

a. The work area will be inspected to ensure that nonessential items have been removed and to ensure that the machine or equipment components are operationally intact.
b. The work area will be checked to ensure that all employees have been safely positioned or removed.

After the lockout/tagout devices have been removed and before the machine or equipment is started, affected employees will be notified that the lockout/tagout devices have been removed.

Each lockout/tagout device must be removed by the authorized employee who applied it.

Note: The one exception to the above is when the authorized employee who applied the lockout/tagout device is not available to remove it. That device may be removed under the direction of the competent person provided that the below specific procedures are followed:

a. Verification by the competent person that the authorized employee who applied the lockout/tagout device is not at the job site.
b. All reasonable efforts will be made to contact the authorized employee to inform him/her that his/her lockout/tagout device has been removed.
c. Ensuring that the Authorized employee has been informed of the above before resuming work.

The person who removes the device must be an authorized employee.

Each type of control of hazardous energy procedure will be documented using the Energy Source Evaluation Form and the Control Procedures Form **except** when all the below listed conditions exist:

a. The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees; and
b. The machine or equipment has a single energy source which can be readily identified and isolated; and
c. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment; and
d. The machine or equipment is isolated from that energy source and locked out during servicing and maintenance; and
e. A single lockout device is under the exclusive control of the authorized employee performing the servicing and maintenance; and
f. The servicing and maintenance does not create hazards for other employees; and
g. No accidents have occurred involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

The above exceptions apply to documentation only. Whether using lockout, tagout, or lockout and tagout, the general procedures are the same.

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Device Selection Criteria for Non-Electrical Hazardous Energy

A lock, color coded with either paint or tape and identifiable with the name of the employee who applied it, will be placed on each energy-isolating device where feasible. Lockout is the primary means of non-electrical hazardous energy isolation and, where possible, will always be used in lieu of tagout. In the event a machine or piece of equipment will not accept a lock on its energy isolating device(s), it will be modified to do so whenever it is replaced, renovated, or undergoes a major repair.

There are occasions where lockout cannot be accomplished and, in those instances, tagout alone may be used as long as it provides full employee protection as explained below:

a. A tag may be used without a lock if a lock cannot be physically applied. This procedure must be supplemented with at least one additional safety measure providing a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include, but are not limited to the:
    1. Removal of an isolating circuit element.
    2. Blocking of a controlling switch.
    3. Opening of an extra disconnecting device.

    Note: A tag may be used without a lock if it can be demonstrated that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option.

All affected persons must be fully aware of the fact that tags used in tagout procedures are essentially a warning device affixed to energy isolating devices. Unlike locks, tags do not physically restrain. Tags will:

a. Be capable of withstanding the environment to which they will be exposed for the maximum period of time that exposure is expected.
b. Be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
c. Be standardized in at least one (1) of the following:
    1. Color
    2. Shape
    3. Size
d. Be standardized in print and format.
e. In their method of attachment, be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment methods and means will be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum strength of no less than 50 pounds and have the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.
f. Indicate the identity of the employee applying the tag.
g. Warn against the hazardous conditions if the machine or equipment is energized and will include a legend such as the following: *Do Not Start, Do Not Open, Do Not Close, Do Not Operate,* etc.

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Control of Electrical Hazardous Energy on Fixed Equipment

Electrical hazards associated with fixed equipment present a special hazard class and, in each case, a determination must be made whether lockout, tagout, or lockout used in conjunction with tagout is to be utilized.

The guidelines for this determination are found in 29 CFR 1910.333. 29 CFR 1910.333 makes no mention of maintenance or servicing. Its provisions apply to any possible exposure to contact with fixed electrical equipment or circuits which have been de-energized. Live parts that operate at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs. Fixed equipment is defined as: "equipment fastened in place or connected by permanent wiring methods."

Before circuits and/or equipment are de-energized, safe procedures will be determined. At a minimum:

a. The circuits and equipment to be de-energized 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.
b. 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. Be aware of the shock potential of capacitors and associated equipment. If they are handled in meeting this requirement (discharging), they will be treated as energized until they have been totally discharged.
c. Stored non-electrical energy in devices that could reenergize electric circuit parts will be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

Device Selection Criteria for Electrical Hazardous Energy

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. The clearance distances specified in 29CFR 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.

A lock and tag will be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed except:

a. A tag may be used without a lock if it can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option. A tag may also be used without a lock, if a lock cannot be physically applied. Under either of the above two circumstances that a tag is used without a lock, the procedures must be supplemented with 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:

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1. The removal of an isolating circuit element.
2. The blocking of a controlling switch.
3. The opening of an extra disconnecting device.

b. A lock may be used without a tag if, and only if:
   1. Only one circuit or piece of equipment is being de-energized, and
   2. The lockout period does not extend beyond the work shift, and
   3. Employees exposed to the hazards associated with re-energizing the circuit are familiar with this procedure - utilizing a lock without a tag.

After electrical hazards are locked out, tagged out, or locked and tagged out, a Qualified Person must verify de-energization before work can proceed on de-energized equipment. Verification by the Qualified Person will include:

a. Operation of the equipment's operating controls, or otherwise verifying that the equipment cannot be restarted.
b. Using test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and verifying that the circuit elements and equipment parts are de-energized.
c. Using test equipment to 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.

Note: If the circuit to be tested is over 600 volts, the test equipment will be checked for proper operation immediately before and immediately after this test.

Re-Energizing Electrical Equipment

The process of re-energizing electrical equipment, even temporarily, must be accomplished as noted below in the order listed:

a. 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 circuit and equipment can be safely energized.
b. Employees exposed to the hazards associated with re-energizing the circuit or equipment will be warned to stay clear of circuits and equipment.
c. Each lock and tag will be removed by the authorized employee (who must also be a Qualified Person when dealing with electrical hazards).
d. If the person who applied the lock or tag is absent from the job site, the competent person may designate another Qualified Person to remove the lock and/or tag provided that:
   1. It is assured that the Authorized Person who applied the lock or tag is not available at the job site, and
   2. It is assured that the Authorized Person who applied the lock and/or tag is aware that the lock and/or tag has been removed before he/she resumes work at the job site.
e. A visual determination will be accomplished to ensure all employees are clear of the circuits energized.

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Special Considerations

Whether using lockout, tagout, or lockout and tagout procedures, the below special considerations apply.

There may be special circumstances where, during a lockout procedure, a machine or equipment must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment or components thereof. The below procedures will be followed to accomplish this task:

a. The machine or equipment will be cleared of tools and nonessential items and, if it is to be operated, all components will be operationally intact.
b. The work area will be checked to ensure that all employees have been safely positioned or removed.
c. The standard release from lockout procedures will be implemented.
d. The machine or equipment will be energized and testing or positioning will proceed.
e. After testing or positioning, de-energize all systems and reapply the energy control device following standard procedures.

Group Lockout and/or Tagout Procedures

In the event that servicing, or maintenance is performed by more than one individual, the following will be implemented:

a. One person will be designated as Group Leader and that person will have overall responsibility for a set number of employees working under his/her control.
b. The Group Leader will have exclusive control of a Master Group Lockout and/or Group Tagout device.
c. The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.
d. Each authorized employee within the group will affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and will remove his/her personal lockout/ tagout device upon completion of work.

If there is more than one group of personnel working a machine or piece of equipment, an employee will be designated to coordinate and take responsibility for all the individual groups.

Shift and/or Personnel Changes

In the event that Energy Control Procedures must extend into the next shift or if there are individual or group personnel changes, the procedures listed below will be implemented in the order listed:

a. If the energy isolation device will accept two lockout/tagout devices:
    1. The authorized employee coming on duty will place his personalized lockout/tagout device in place, and
    2. After the above step has been completed, the employee going off duty will remove his lockout/tagout device.

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b. If the energy isolation device will not accept two lockout/tagout devices, both the incoming and outgoing authorized employees will:
    1. Ensure that all affected employees are aware that a lockout/tagout change is about to take place, then
    2. Ensure that the area is clear of tools and affected employees, then
    3. The outgoing authorized employee will remove his lockout/tagout devices and immediately the incoming authorized employee will install his lockout/tagout devices, and
    4. The incoming authorized employee will inform the affected employees that the change has been completed.

Following the above procedure will ensure the energy isolating device is never disturbed and that complete control of hazardous energy is maintained. The above procedure provides for continuing protection for both incoming and outgoing employees from the potential hazards of the unexpected release of hazardous energy and an orderly transfer of lockout/tagout responsibilities.

Outside Personnel

Whenever our company's employees are to be engaged in activities requiring lockout/tagout in another company's facility, we must inform the on-site employer of our lockout or tagout procedures. The on-site employer will ensure that their employees understand & comply with our restrictions & prohibitions of our energy control program.

Periodic Inspections

Matt Landers, our Safety Director, will conduct periodic inspections of this Control of Hazardous Energy Program at least annually to ensure that the procedures and requirements of 29 CFR 1910.147 are being followed. The information gleaned from the periodic inspection will be used to correct any deviations or inadequacies identified. These inspections will be documented and certification will be prepared to identify the machine or equipment on which an energy control procedure was utilized, the date of the inspection, the employees included in the inspection, and the name of the person performing the inspection. It should be noted that all periodic inspections will be conducted by a competent person designated by the Matt Landers **other** than the person who actually used the energy control procedure being inspected.

Training & Retraining

LNE Electric will provide training to ensure that the purpose and function of our Control of Hazardous Energy program is understood by our employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training must include the following:

a. Each authorized employee will receive training in the recognition of applicable hazardous energy sources, the type & magnitude of the energy available in the workplace, & the methods & means necessary for energy isolation & control.
b. Each affected employee will be instructed in the purpose and use of the energy control procedure.
c. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, will be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

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When tagout systems are used, employees will also be trained in the following limitations of tags:

a. Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
b. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
c. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
d. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
e. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
f. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

Retraining

Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

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

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

Training Documentation

LNE Electric will certify that employee training has been accomplished and is being kept up to date. The certification must contain each employee's name and dates of training.

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Machine/Equipment Identification: _____

Location of Machine Equipment: _____

Authorized Person Name: _____ Date: _____

Energy Sources Evaluation & Control Procedures Form

MACHINE OR EQUIPMENT NAME: _____ LOCATION: _____

MODEL: _____ SERIAL NUMBER: _____ PROCEDURE NUMBER: _____

ENERGY SOURCE	MAGNITUDE (Volts; Amps; Phase; HP; Lbs.; RPM; Ft-lbs.; psi.; F/C; Highly Reactive)	LOCATION OF ISOLATING DEVICE	MEANS OF ISOLATION	COMMENTS
CAPACITOR				
CHEMICAL				
COUNTER WEIGHT				
ELECTRICAL				
ENGINE				
FLYWHEEL				
HYDRAULIC				
PNEUMATIC				
SPRING				
THERMAL				
OTHER				
OTHER				

Note: This form must be completed by an Authorized Employee.

Evaluation Conducted by: _____

Name: _____ Date:_____

(Must be an Authorized Employee)

1 of 3

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Machine/Equipment Identification: _____

Location of Machine Equipment: _____

Authorized Person Name: _____ Date: _____

These Procedures must be accomplished in the order listed.

1. **PREPARATION FOR SHUTDOWN:** The Authorized Employee will be totally familiar with the first page of this form. The Affected Employees will be notified that the piece of equipment is about to be shut down and locked out.

Specific Instructions: _____

_____

_____

_____

2. **SHUTDOWN:** Affected Employees will be given the reason(s) for the lockout/tagout procedures. If the machine is running, it will be turned off using normal procedures. It may be shut down by either the Authorized Employee or the Affected Employee.

Specific Instructions: _____

_____

_____

_____

3. **MACHINE ISOLATION:** All real or potential hazardous energy listed on the first page of this form will be isolated from their source. The location of the isolation devices and the methods used are also found on the first page of the form.

Specific Instructions: _____

_____

_____

_____

4. **LOCKOUT/TAGOUT DEVICE APPLICATION:** Authorized Employees will (circle appropriate procedure): [lockout] [tagout] [lockout and tagout] the energy isolating devices. Lock and tag devices will be color coded and they will contain the identity of the Authorized Employee actually performing this procedure. The lockout/tagout devices will be applied so that they hold the energy isolating device in a "Neutral" or "Off" position.

Specific Instructions: _____

_____

_____

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4a. If a tag is used in lieu of a lock because the energy isolating device will not accept a lock, the following additional safety precautions will be taken [29 CFR 1910.147 c(3)(ii) & 29 CFR 1910.333(2)(b)(iii)((D)]:

_____

_____

_____

Specific Instructions: _____

_____

_____

_____

5. **RELEASE OF STORED ENERGY:** All stored energy will be blocked or dissipated. Reference page one (1) of this form to ensure real or potential stored energy in a system is identified and controlled.

Specific Instructions: _____

_____

_____

_____

6. **VERIFICATION OF ISOLATION:** Prior to starting work on the piece of equipment and after ensuring that no personnel are exposed to the release of hazardous energy, the Authorized Employee will operate the controls to verify that there has been de-energization and that the equipment will not operate. After this verification, the operating controls will be returned to the "Neutral" or "Off" position.

Specific Instructions: _____

_____

_____

_____

7. **RELEASE FROM LOCKOUT/TAGOUT:** The Authorized Employee will 1.) Ensure that all Employees have been safely positioned or removed and the work area will be cleared of non-essential items, 2.) Ensure the equipment or equipment components are operationally intact; 3.) Ensure machine guards have been replaced; 4.) Inform the Affected Employees that lockout and or tagout devices are going to be removed; 5.) Remove the lockout and or tagout devices including all energy restraints such as blocks; and 6.) Inform the Affected Employees that the equipment is ready for operation.

Specific Instructions: _____

_____

_____

_____

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Group Leader Documentation Form

One (1) person will be designated as Group Leader. The Group Leader will have overall responsibility for a set number of employees.

The Group Leader will have exclusive control of a Master (Group) Lockout and/or Group Tagout device.

The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

Each individual authorized employee within the group will affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and will remove his/her personal lockout/tagout device upon completion of work.

If there is more than one group of personnel working on a machine or piece of equipment, an employee will be designated to coordinate and take responsibility for all the individual groups.

Name of Designate Group Leader: _____

Equipment Requiring Control of Hazardous Energy

Name: _____ Serial Number: _____

Date: _____ Model Number: _____

Authorized (Qualified) Employees of the Group

_____	_____
(Name)	**(Signature)**
_____	_____
(Name)	**(Signature)**
_____	_____
(Name)	**(Signature)**
_____	_____
(Name)	**(Signature)**

_____

Matt Landers
Program Administrator

Signature of Group Leader: _____

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LNE Electric

Periodic Inspection Documentation Form
Equipment on which Control of Hazardous Energy Procedures were Utilized

Name: _____ Serial Number: _____

Date: _____ Model Number: _____

Were all the Correct Procedures Correctly Applied? ☐ YES ☐ NO

If yes, sign the form and return to Matt Landers.
If no, complete the below section, sign the form and return to Matt Landers.

Employees Preforming the Procedure

_____ _____
(Name) **(Signature)**

_____ _____
(Name) **(Signature)**

_____ _____
(Name) **(Signature)**

_____ _____
(Name) **(Signature)**

Improper Procedures Noted

_____

_____

_____

_____

_____ _____
(Signature of Inspector) **(Date)**

Note: If improper procedures are noted, the above employees must have retraining, or the Program must be modified.

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Personal Protective Equipment - General

29 CFR 1926.28 - Personal Protective Equipment
29 CFR 1926.52 - Occupational Noise Exposure
29 CFR 1926.95 - Criteria for Personal Protective Equipment
29 CFR 1926.100 - Head Protection
29 CFR 1926.101 - Hearing Protection
29 CFR 1926.102 - Eye and Face Protection
29 CFR 1926.107 - Definitions Applicable to this Subpart
29 CFR 1910.132 - General Requirements
29 CFR 1910.133 - Eye and Face Protection
29 CFR 1910.135 - Head Protection
29 CFR 1910.136 - Occupational Foot Protection
29 CFR 1910.138 - Hand Protection

Overview

This Personal Protective Equipment (PPE) Program has been prepared to inform our employees of potential hazards on the job site and to identify the proper PPE to be used to reduce or eliminate these hazards. This Program relies on a cooperative effort by all personnel to understand the reasons for PPE and to protect themselves from harm.

The use of PPE does not lessen an employee's obligation to use safe work practices and procedures. Employees are expected to be aware of the hazards within their area of responsibility and properly use prescribed PPE.

Our operations, work methods, and individual job sites present specific hazards which must be identified, analyzed, and matched with the appropriate PPE through a continuing hazard assessment process.

A Certificate of Hazard Assessment will be kept on the job site for inspection purposes.

Duties of the PPE Program Administrator

The PPE Program Administrator is Matt Landers and their duties include: hazard assessment; PPE selection; PPE training; and monitoring of our PPE Program. Certain types of PPE may require hands-on training before on the job use (primarily for sizing and fitting) and this training may be further delegated to competent persons.

Matt Landers will verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

Hazard Assessment and PPE Selection

A careful, systematic personal protective equipment selection process is used to identify what, if any, protection is required to reduce or eliminate the possibility of eye, hand, foot, limb, or head injury.

Hazard assessment, performed by Matt Landers or a designated competent person, starts with a thorough knowledge of our job sites, work procedures, and methods of operation. This includes the hazards that may be created by other contractors working in the vicinity of our employees. The basic hazard categories are: impact, penetration, compression, chemical, heat, harmful dust, and light radiation.

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Identifying the source of the above hazards allows for consideration of administrative or engineering controls to eliminate the hazard as opposed to providing protection against it. Examples would include: redirecting traffic flow, ventilation, temporary weather barriers, non-slip surfaces, etc.

Because administrative and engineering controls are passive – no employee involvement is required – they are preferable to PPE.

A PPE selection is made by analyzing the above information and evaluating the type of risk, the level of risk, the potential for injury and the possible seriousness of that injury. PPE, which is compatible with the above risks and work situation, is considered. Actual selection involves all the above factors plus an attempt to provide a level of protection greater than the minimum required.

In all situations where it has been determined that a particular type of PPE is to be used, it will be used. There will be no exceptions, by virtue of position or rank, to this policy. Within an area on a job site where the possibility of falling objects exists, hard hats will be worn. It follows that once an item of PPE (hard hat, in this case) is selected, it must be used by all persons in the identified area regardless of job title or function.

Having Matt Landers or designated competent person at the workplace determine the PPE requirements allows for knowledgeable selection and consistency, and eliminates chaos that would result if each individual were to decide when, where, and if PPE should be used.

29 CFR 1910 Subpart I - Appendix B, *Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection*, provides excellent selection guidelines for eye and face protection, head protection, foot protection, and hand protection.

Dissemination of PPE Selection Information

Employees must understand when PPE is necessary and what type(s) of PPE are necessary.

All persons for whom PPE will provide a measure of safety will be given appropriate training on that item of PPE as well as an explanation of the importance of its use.

ANSI Standards and PPE

Most items of PPE are manufactured in accordance with a specific **American National Standards Institute (ANSI)** standard. For example, protective eye and face devices purchased after 07/05/94 must comply with ANSI standard ANSI Z87.1-1989, *American National Standard Practice for Occupational and Educational Eye and Face Protection*; protective helmets purchased after 07/05/94 must comply with ANSI standard ANSI Z89.1-1986, *American National Standard for Personnel Protection-Protective Headwear for Industrial Employees-Requirements.*

PPE safety products are tested to ensure they meet ANSI standards. Because products are tested in the manner in which they are designed to be used, ANSI certification is valid only if the user follows the manufacturer's instructions for proper sizing, fitting, wearing, and adjusting. A review of OSHA citations reveals that fines can be levied because employees were improperly using PPE. For example, a hard hat worn with the bill toward the rear may provide adequate protection from impact; however, because it is tested with the bill toward the front, this improper use is cause for a safety violation.

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PPE will be provided to our employees at **no cost** to them. There are some exceptions to this and they are as follows:

We are not required to pay for non-specialty safety-toe protective footwear (including steel-toe shoes or steel-toe boots) and non-specialty prescription safety eyewear, provided that we allow those items to be worn off the jobsite.

If we provide metatarsal guards and allow you, at your request, to use shoes or boots with built-in metatarsal protection, we are not required to reimburse you for the shoes or boots.

Additionally, we are not required to pay for:

a. Everyday clothing, such as long-sleeve shirts, long pants, street shoes, and normal work boots; or
b. Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen.

We must pay for replacement PPE, except if you have lost or intentionally damaged the PPE. An employee may use their own PPE if we deem it appropriate. We will ensure that it provides adequate protection and that the employee maintains and sanitizes their equipment properly. Additionally, we are not required to reimburse the employee for their equipment.

Prior to purchase, items of selected PPE will be checked to ensure they were manufactured in accordance with the proper ANSI standard. The importance of hazard assessment takes on added significance when judgments are made matching the hazard to the protection desired in cases where ANSI certification is not available. What matters most is: does the selected PPE do what it is intended to do?

Employee owned PPE must be approved for use by Matt Landers. Further, such equipment must be properly maintained and cleaned in accordance with the manufacturer's instructions.

Sizing and Fitting

The word "personal" in the phrase "personal protective equipment" correctly implies that the equipment is for a specific person. As such, sizing and fitting are important for a variety of reasons.

Function: An improperly fitted piece of PPE may not do its job. For example, eye protection against dust must have an excellent face seal.

Comfort: The likelihood of continued use is increased if the PPE selected is comfortably fitted. Example: gloves that fit poorly and, over time, make a person's hands hot and clammy are likely to be removed exposing that person to the hazard for which the gloves were required in the first place.

Safety: Ill-fitting PPE may actually cause an accident. Example: loose hard hat may slip and block one's vision.

Most PPE comes in a variety of standard sizes like small, medium, & large, & within those sizes, small adjustments may be made to ensure a perfect fit. It is important to understand the procedures for donning, adjusting, using, & removing PPE. Each person who is required to use any type of PPE will be taught, before initial issue, the specific procedures for properly donning, adjusting, using, & removing the specific PPE. This instruction will generally be given by the employee's Supervisor. When available, the manufacturer's instructions will be issued with the PPE.

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Care and Maintenance of PPE

PPE will be visually inspected before each use and if defects are noticed, it will not be used. Some types of PPE are expendable (cotton gloves) and have a limited life span after which they are discarded, and new PPE is reissued. Plastic safety glasses become scratched and they too must be exchanged for new ones when vision is impaired. Other types of safety equipment consist of both non-expendable and expendable components. A cartridge respirator is an example of this, with the respirator being non-expendable while the cartridges “wear out” and become expendable (discarded and replaced). PPE will be maintained in accordance with the manufacturer’s instructions and, where appropriate, kept in a sanitary condition.

Cleanliness takes on an added importance when dealing with PPE designed to protect the eyes and face. Dirty or fogged lenses can impair vision and, rather than offer protection from a hazard, actually becomes a contributory factor in causing an accident. Any defective or damaged PPE will not be used.

Lastly, should PPE become contaminated with a chemical substance and decontamination is impossible, the PPE will be properly disposed of following the disposal instructions on the Safety Data Sheet for that substance.

Training

All PPE training will be documented, and records will be maintained for all employees. Affected employees will be given an understanding of:

a. When PPE is necessary.
b. What PPE is necessary.
c. How to properly put on, take off, adjust, and wear PPE.
d. The limitations of the PPE.
e. The proper care, maintenance, useful life and disposal of the PPE.

Each employee will demonstrate an understanding of the training, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

Retraining

Employees will be retrained when there is reason to believe they do not have the understanding and skill required work safely around fall hazards. Situations requiring retraining include, but are not limited to, the following:

a. When changes in the workplace render previous training obsolete or inadequate.

b. When changes in the types of fall protection systems or equipment to be used render previous training obsolete or inadequate; or
c. When inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee no longer has the requisite understanding or skill necessary to use equipment or perform the job safely.

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As a contractor, we are not required to have a PPE Program, per se, nor is the hazard assessment a ***specific*** requirement. In fact, there is no hand protection standard. Construction standards are short and to the point. The complete standard for head protection is printed below:

> Standard Number: 1926.100
>
> Title: Head protection.
>
> Applicable 1910 Standards 1910.135
>
> (a) Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, will be protected by protective helmets.
>
> (b) Helmets for the protection of employees against impact and penetration of falling and flying objects will meet the specifications contained in American National Standards Institute, Z89.1-1969, Safety Requirements for Industrial Head Protection.
>
> (c) Helmets for the head protection of employees exposed to high voltage electrical shock and burns will meet the specifications contained in American National Standards Institute, Z89.2-1971.

Most PPE requirements are obvious and PPE wear is so simple that training is almost unnecessary.

What is important – vitally important – is actually using the proper PPE when it is required.

To ensure employee compliance with PPE requirements, we have opted to treat all employees as intelligent, responsible persons who, when reminded of what PPE actually protects, will enthusiastically endorse PPE use.

Eye and Face Protection

Your eyes are a marvel of engineering. Most of us take them for granted as we do all our senses, until an accident, injury, or disease forces us to realize the miracle we lost or almost lost. Can you imagine a system that can take (absorb) light and convert it to electrical signals (by way of the 120 million rods and 6 million cones on the retina) and transfer these signals through an optic nerve which has about one million fibers directly into the brain?

Most of us see the world in living color and with depth perception. The body itself does much to protect the eyes. Bony eye sockets in the skull protect the eye from many mechanical injuries. Orbital fluids and tissues cushion direct blows. Eyelids close reflexively from visual or mechanical stimuli. Eyes reflexively rotate upward with the lid closing to protect the cornea. Tears can flush away chemicals and foreign bodies. We all come with these safeguards. Sometimes, they are not enough.

Eye protection is required when there is a possibility of eye injury. Eye injury is not confined to flying objects. Eye injury can be caused by bright light, dust, chemicals, heat, and, literally, anything that can reach them. Different hazards require different types of protection.

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Eye (and face) protection is required when one is exposed to flying particles, chemicals, or injurious light radiation. Types of eye protection include: impact resistant safety glasses, safety glasses with side shields, goggles, goggles with a face seal, face masks, and shaded goggles with varying degrees of darkness.

Affected employees who wear prescription lenses will wear eye protection over the prescription lenses without disturbing the proper positioning of the prescription lenses or will wear eye protection that incorporates their prescription into the design.

All prescription glasses should be made with impact-resistant lenses. Hardened lenses, through a tempering process, are extremely hard and resistant to impact and breakage. Safety lenses are similar to hardened lenses but are 1 mm thicker. Safety lenses are used in goggles where there is a danger of flying glass or chips of metal.

All employees who wear contact lenses must also wear appropriate eye and face protection in hazardous environments.

Welding helmets and face shields, if required, should be worn over primary eye protection (spectacles or goggles).

An inexpensive pair of safety glasses can save your priceless eyesight.

Head Protection

Talking about head protection is really talking about brain protection. Your brain, either through divine providence, evolution, or quirk of nature, is you. The brain, that soft mass of gray and white convoluted matter, is what you are all about. Destroy your brain and you no longer exist.

Your brain is naturally protected by a cranium. Your skull actually has many bones which protect your brain and support your face. Obviously, there are other parts to your head which need protecting such as your eyes, ears, nose, tongue, skin, etc., but your brain is the most important.

Head protection is required when there is a possibility of injury to the head from falling objects and when working near exposed electrical conductors which could contact the head.

Brain injury is the second most common cause of major neurologic deficits and causes more deaths than injury to any other organ.

When the skull receives an impact, it actually can indent and deform. A fracture may occur, and the fracture may be distant from the point of impact. A direct blow to the head can cause the brain to actually move within the skull. Surprisingly, there is often a reverse correlation between skull damage and brain damage. Just because there is no external visible injury to the skull does not preclude the possibility of brain injury.

Wearing head protection (a hard hat) accomplishes two major objectives: it reduces the rate of energy transfer and spreads out the area of energy transfer. Just as your head should be checked out at a hospital after a head impact, so should your hard hat. A hard hat can absorb energy by destructing and this destruction may be unnoticeable.

A head injury may occur after a blow to the head and the following symptoms may be present: unconsciousness or disorientation, confusion, nausea, vomiting, and/or double vision. Get medical help immediately. Cover open wounds lightly with sterile dressing. Keep victim still, warm, and reassured. DO NOT move the victim unless he/she would be in greater danger if you did not. DO NOT apply pressure to a head wound. DO NOT try to stop blood or clear fluid coming from ears, nose, or mouth.

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Hearing Protection

Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-2, below, ear protective devices will be provided and used.

Table D-2 - Permissible Noise Exposure	
Sound Level Duration Hours/Day	**dBA Slow Response**
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

Hearing damage is caused by noise level and duration of exposure to the noise. If, after using the formula below, the equivalent noise exposure exceeds unity (1), then a Hearing Conservation Program will be initiated.

F(e)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by L(n)) where:

F(e) = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level

(from Table D-2).

If the value of F(e) exceeds unity (1) the exposure exceeds permissible levels.

A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:

110 db A 1/4 hour.

100 db A 1/2 hour.

90 db A 1 1/2 hours.

F(e) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 8)

F(e) = 0.500+0.25+0.188

F(e) = 0.938

Since the value of F(e) does not exceed unity, the exposure is within permissible limits.

Ear protective devices inserted in the ear will be fitted or determined individually by competent persons.

Plain cotton is not an acceptable protective device.

Understanding some interesting facts about your hearing will emphasize the need for hearing protection.

Your outer ears on the side of your head are the least important part of your hearing system. Should you lose your ear, you would not necessarily lose your hearing. Your outer ear, made of cartilage, includes the external auditory canal which leads to the eardrum which is only 2/5" in diameter.

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The eardrum separates the outer ear from the middle ear. Within the middle ear are three (3) bones commonly called the hammer, anvil, and stirrup. The stirrup (stapes) is the smallest bone in your body -- thinner than a grain of rice. Also in the middle ear is the Eustachian tube which connects the middle ear to the back of the throat to maintain equal air pressure on both sides of the ear drum.

The inner ear, where sound waves are converted to electrical impulses, actually has a function unrelated to hearing. It contains the semicircular canals which completely control your balance. Also in the inner ear is the cochlea, a small spiral coil in which you would find the basilar membrane which has over 15,000 hair cells. These hair cells are the end of the auditory nerve which goes directly to the temporal lobe of the brain.

The hardest bone in your whole body is the temporal bone which protects two thirds of the auditory canal and all of the middle and inner ear. Nature, itself, seems to have placed a high priority on your hearing.

Protect your hearing. If you are issued hearing protection, use it!

Foot Protection

When purchasing new protective footwear, ensure that it complies with ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard Specification for Performance Requirements for Protective Footwear."

Specific hazards require specific types of protective footwear. Certain types of footwear can offer traction, crush protection, penetration protection, electrical protection, chemical resistance, heat and/or fire resistance, dryness, cushion, or ankle-protection. Further, certain activities may require a combination of these features.

Your foot is a remarkable piece of engineering which is composed of 26 bones, muscles, fatty tissue, nerves, tendons, skin and joints. The foot itself can absorb a tremendous amount of punishment without damage. But there are limits and it would be a shame to lose a foot, or part of a foot, because of failure to wear the prescribed protective footwear.

Hand Protection

Your hand is composed of 20 muscles, 3 major nerves, 27 bones (14 of which are in your fingers) plus skin, fatty tissue, tendons, and joints. There are 15 muscles in your forearm which provide power to your hand. Your hand is your gateway to the world. It lets you do what you think. Its function is feeling and grasping.

Try to pick up something while holding your thumb still. It is very difficult. If the nerve to the small muscles of the thumb is severed, 80% of the total hand function is lost.

There are numerous types of hand protection (gloves) available -- each with a specific purpose. The most common are general purpose cotton work gloves which provide protection from minor skin abrasions and cold. However, there are many other types of gloves. Hands need protection from chemicals, abrasions, cuts and lacerations, temperature extremes, germs, radiation, impact, punctures, electricity, and other hazards on the job site. Specific job requirements determine the type of hand protection needed. Proper hand protection must do more than protect your hand; it must allow you to accomplish your job assignment with efficiency as well as safety.

Wearing hand protection could prevent your hand and/or fingers from being severed, burned, crushed, punctured, lacerated, cut, or generally abused.

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Respiratory Protection

Employees who, by nature of their work, are exposed to harmful aerosols, vapors, gases, contaminated air, or non-breathable air will be provided air purifying or air supplying respirators after training, medical evaluation, and fit testing per our Respiratory Protection Program. The one exception is dust masks worn solely for comfort and not for respiratory protection.

Miscellaneous Personal Protection

PPE immediately brings to mind eye, head, hand, and foot protective equipment. However, there may be other types of protective equipment which are readily available, and which have the capability of protecting employees from identified hazards on the job site. Some of these items may not fall under a specific OSHA standard or may not be ANSI approved or disapproved; however, in the judgment of Matt Landers, they may be appropriate for use in our operations.

Summary

The true beneficiary of PPE utilization is the user. The whole thrust of this Program is to protect our employees from injury. This is accomplished by, among other things, explaining the process of hazard assessment, the reasons for PPE use, and the necessity of using the PPE selected.

What possible justification could there be for maiming, losing, or even slightly injuring a body part because available (and required) PPE was not used? “I forgot”; “I was in a hurry”; “I misplaced my PPE”; “I felt silly wearing PPE”; or “I really didn’t believe PPE was necessary” will not undo what could be a lifetime of regret.

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LNE Electric

Certificate of Job Site Hazard Assessment

I certify, this date, that I have performed a hazard assessment of our job sites and our methods of operations.

This hazard assessment was accomplished to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

All affected employees will be informed of the required PPE for specific work locations or specific types of work to be performed and will receive initial training or retraining, if necessary, before being allowed to perform work requiring PPE.

If conditions or procedures change, a reassessment will be made.

_____ _____

Matt Landers — Date of Hazard Assessment

PPE Program Administrator

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Personal Protective Equipment - Hearing Conservation

29 CFR 1910.95 - Occupational Noise Exposure
29 CFR 1926.52 - Occupational Noise Exposure
29 CFR 1926.101 - Hearing Protection

Overview

This Hearing Conservation Program is designed for one purpose – to prevent hearing damage caused by occupational noise exposure.

Most forms of personal protective equipment (PPE) are a response to an obvious hazard and are easy to understand. A hard hat will protect your head from falling objects, for example.

Hearing protection is different from most other types of PPE because loss of hearing generally occurs painlessly over a period of time and, when finally realized, the damage is permanent.

Because of the above, it is vital that cooperation between all affected employees and management be established to prevent occupational hearing loss. To achieve this goal, our Hearing Conservation Program focuses on the effects of noise on hearing as well as the selection and use of hearing protectors. Information is provided on how sound is transmitted to your brain, and lastly, the actual application of our Hearing Conservation Program.

While our Hearing Conservation Program has all the elements required of a complete safety program, it is not necessary to understand all the technical formulas and procedures that are required of licensed monitors, doctors, and hygienists. Individual employees are required to wear appropriate hearing protection when so directed and to understand the importance of protecting their hearing from damage. If workplace noise bothers you and those noises are below the threshold for required ear protection, you should bring this to the attention of Matt Landers, our Hearing Conservation Program Administrator, for resolution.

Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-2, below, ear protective devices will be provided and used.

Table D-2 - Permissible Noise Exposure	
Sound Level Duration Hours/Day	**dBA Slow Response**
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

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Hearing damage is caused by noise level and duration of exposure to the noise. If, after using the formula below, the equivalent noise exposure exceeds unity (1), then a Hearing Conservation Program will be initiated.

F(e)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by L(n))
where:
F(e) = The equivalent noise exposure factor.
T = The period of noise exposure at any essentially constant level.
L = The duration of the permissible noise exposure at the constant level (from Table D-2).
If the value of F(e) exceeds unity (1) the exposure exceeds permissible levels.
A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:
110 db A 1/4 hour.
100 db A 1/2 hour.
90 db A 1 1/2 hours.
F(e) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 8)
F(e) = 0.500+0.25+0.188
F(e) = 0.938
Since the value of F(e) does not exceed unity, the exposure is within permissible limits.

Hearing protection is different from most other types of PPE because loss of hearing generally occurs painlessly over a period of time and, when finally realized, the damage is permanent.

As one would reasonably expect, acoustic trauma to your hearing can cause instant and permanent damage.

The initial determination of excessive noise levels is generally subjective. Indications of excessive noise would include: actual information pertaining to specific machines, personal observation, complaints from employees, and noticed indications of hearing loss. It is requested that employees draw attention to work situations where there is an apparent loudness that possibly requires hearing protection.

Duties of the Program Administrator

The duties of Matt Landers include identifying work areas where the equivalent noise exposure factor exceeds unity, determining what types of noise level monitoring may be necessary, and ensuring that all personnel who are directed to wear hearing protection are trained in its proper use, cleaning, and storage.

Matt Landers will also be responsible for recordkeeping, testing, and training.

Matt Landers will also keep abreast of developments in the hearing conservation field and he is encouraged to seek outside professional help when needed.

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When a Hearing Conservation Program is Required

The industry standard that deals with occupational noise exposure, 29 CFR 1926.52, *Occupational Noise Exposure,* is what this program is based.

Hearing protection will be provided at 85 dbA or greater **or** when it is not feasible to reduce the noise levels or duration of exposures to those specified in Table G-16 below, ear protective devices will be provided and used.

Table G-16 - Permissible Noise Exposure	
Sound Level Duration Hours/Day	**dBA Slow Response**
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115
Footnote[1]	**When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: C(1)/T(1) + C(2)/T(2) C(n)/T(n) exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and T(n) indicates the total time of exposure permitted at that level.** **C = total length of workday in hours** **T = period of noise exposure at any essentially constant level** **C(n) = total time of exposure at a specific noise level** **T(n) = total time of exposure permitted at that level**
Footnote[2]	**When the daily noise exposure is composed of two or more periods of impulsive or impact noise should not exceed 140 dB peak sound pressure level.**

A continuing, effective hearing conservation program will be administered when employees are exposed to sound levels greater than 85 dbA on an 8-hour time-weighted average basis.

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This Hearing Conservation Program must be implemented when the equivalent noise exposure exceeds unity (the number 1) using the below formula and example:

F(e)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by L(n)) where:
F(e) = The equivalent noise exposure factor.
T = The period of noise exposure at any essentially constant level.
L = The duration of the permissible noise exposure at the constant level (from Table G-16).
If the value of F(e) exceeds unity (1) the exposure exceeds permissible levels.
A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:
110 db A 1/4 hour.
100 db A 1/2 hour.
90 db A 1 1/2 hours.
F(e) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 8)
F(e) = 0.500+0.25+0.188
F(e) = 0.938
Since the value of F(e) does not exceed unity, the exposure is within permissible limits.

Definitions

There are certain words in our Hearing Conservation Program which are not used in everyday life. So that all may have a clearer understanding of this program, the below definitions are presented:

Action Level means an 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Attenuate means to lessen the intensity.

Audiogram means a chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Audiologist means a professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.

Baseline Audiogram means the audiogram against which future audiograms are compared.

Criterion Sound Level means a sound level of 90 decibels.

Decibel (dB) means a unit of measurement of sound level.

Dosimeter means an instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

Hertz (HZ) means a unit of measurement of frequency, numerically equal to cycles per second.

Medical Pathology means a disorder or disease which should be treated by a physician specialist.

NIHL means a Noise Induced Hearing Loss.

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Noise Dose means the ratio, expressed as a percentage, of:

a. the time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and
b. the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).

Otolaryngologist means a physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

Representative Exposure means measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.

Sound Level means ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micro pascals. Unit: decibels (dB). For use with OSHA standard 29 CFR 1910.95, SLOW time response is required.

Sound Level Meter means an instrument for the measurement of sound level.

Time-Weighted Average means that sound level, which if constant over a SOUND LEVEL 8-hour exposure, would result in the same noise dose as is measured.

Noise Monitoring Procedures

Initially, the implementation of a noise monitoring program is the result of subjective reasoning by Matt Landers, the Program Administrator. Indications of excessive noise would include: actual information pertaining to specific machines, personal observation, complaints from employees, and noticed indications of hearing loss. It is requested that employees draw attention to work situations where there is an apparent loudness that possibly requires hearing protection.

The measure of a sound's strength is referred to as "sound level" and it is measured in units called "decibels" (dB).

To provide some idea of the loudness of 85 dB, the following comparisons are provided:

Sounds of:	Approximate Decibels:
Softest sound heard with normal hearing	0 dB
Ordinary speech at conversational distance	65 dB to 70 dB
Telephone dial tone	80 dB
Train whistle at 500 feet	90 dB
Power mower	107 dB
Jet engine at 100 feet	140 dB
Gun Shot	140 dB
Note: Sound levels above 80 dB may become uncomfortable; sound above 125 dB may be painful.	

Individual occupational sound exposures above 85 dB do not trigger the need for noise monitoring or a Hearing Conservation Program -- it is when the equivalent noise exposure factor exceeds unity. The two factors that cause occupational hearing loss are: 1) loudness and 2) the duration of time one is exposed to that loudness. **In spite of the above**, when information indicates employee exposure may equal/exceed the 8-hr. time-weighted avg. of 85 decibels, the monitoring program will be implemented to identify employees to be included in the hearing conservation program.

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Hearing loss generally occurs over a lengthy period of time. Of course, as one would reasonably expect, acoustic trauma to your hearing can cause instant and permanent damage.

Our monitoring program is designed to identify:

a. Areas where feasible administrative controls may be implemented to reduce noise exposure. Example: shorter exposure times.
b. Areas where feasible engineering controls may be implemented to reduce noise exposure. Example: soundproofing.
c. Which employees should be included in our hearing conservation program.
d. The types of hearing protection to be used.

Noise monitoring equipment and procedures will be determined by employee mobility, variations in workplace sound levels, individual types of noise such as impact, impulse, or steady stream; and/or the noise type combinations.

Noise Level Monitoring

The monitoring equipment and procedures will be designed to determine the actual sound levels that reach the employee's ears and the length of time there is exposure to those levels.

Noise level monitoring is generally conducted by using a dosimeter, a sound level meter, or both. Because a sound level meter takes one measurement at one point in time, it is useful when sound is fairly constant, and the employee is not moving in and out of the noise area.

A dosimeter, on the other hand, stores sound level measurements and can produce an average noise exposure which can be calculated into an 8-hour time weighted average. When using a dosimeter in an area where employees are exposed to varying sound levels or they move in and out of the noise area, the dosimeter is actually worn and the sound pick-up is placed close to the employee's ear to get an accurate measurement of the sound level exposure. Generally, a dosimeter is the best choice for the workplace.

Noise level monitoring results, as well as 29 CFR 1910.95, will be made available to affected employees and copies of these items be **posted** in the workplace.

Monitoring Plan

All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB will be integrated into the noise measurements.

All instruments used to measure employee noise exposure will be calibrated to ensure measurement accuracy.

Representative personal sampling will be used, in lieu of area sampling, when there is high employee mobility, significant variations in sound levels, or a significant component of impulse noise.

Area sampling will be used when sound levels are relatively constant, and employees have a constant exposure to them.

When there is a change in workplace activity or equipment which would likely increase noise levels, additional monitoring will be undertaken.

a. All persons found to be exposed to sound levels at or above the action level will be notified.
b. Affected employees or their representatives will be allowed to observe the noise monitoring process.

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Noise Level Monitoring Records

All noise level monitoring records will be kept for a period of two (2) years.

Audiometric testing program

Audiometric testing will be made available at no cost to affected employees. When noise exposures reach the action level, **8-hour time-weighted average of 85 dbA**, the audiometric testing will be initiated.

Audiometric tests will be performed by a licensed or certified audiologist, otolaryngologist, physician, technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining, and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist, or physician.

Baseline Audiogram

Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram will be established against which subsequent audiograms can be compared. Hearing loss can occur as a result of age, trauma, drug reaction, and exposures that are not work related. However, with a baseline audiogram -- which measures the frequency (125 or 250 Hz to 8000 Hz) and loudness (-10 or 0 dB to 110 dB) -- it is possible from subsequent audiograms to determine with accuracy if hearing loss is due to occupational noise exposure or some other cause.

For the purposes of this program, audiograms must measure, in each ear, at least the frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz.

An annual audiogram may be substituted for the baseline audiogram if the audiologist, otolaryngologist or physician who is evaluating the audiogram determines:

a. The standard threshold shift revealed by the audiogram is persistent.
b. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

Procedure:

To ensure an accurate test, employees must not be exposed to occupational noises for at least 14 hours prior to the establishment of a baseline audiogram. To meet this requirement, if needed, hearing protectors may be worn during the preceding work shifts. This procedure is to factor out temporary hearing changes from the test.

Annual Audiogram

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

A standard threshold shift would be a change in hearing of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

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While audiograms may be compared by a technician, problem audiograms will be referred to an audiologist, otolaryngologist, or physician for further evaluation.

The person performing this evaluation will be provided the following:

a. A copy of this program including all standards.
b. The baseline audiogram and most recent audiogram of the employee to be evaluated.
c. Measurements of background sound pressure levels in the audiometric test room as required in Appendix D to 29 CFR 1910.95.
d. Records of audiometer calibrations.

Note: If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be re-tested within 30 days and these results will be considered the annual audiogram.

If the physician determines that a standard threshold shift has occurred, the following steps will take place:

a. Those employees not using hearing protectors will wear them and be trained in their use and care.
b. Those employees using hearing protectors will be **re-evaluated and refitted** and provided with hearing protectors that offer greater attenuation. They will also be retrained using this program with emphasis on the need for hearing protection.
c. The employee will be referred for a clinical audiological evaluation or an ontological examination if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
d. The employee will be informed, **if necessary**, of the need for an **ontological examination if a medical pathology of the ear** that is unrelated to the use of hearing protectors is suspected.

Audiometric Tests - Recordkeeping

Audiometric test records will be retained for the duration of the affected employees' employment.

These records will include:

a. The employee's name and job classification.
b. The date of the audiogram.
c. The examiner's name.
d. The date of the last acoustic or exhaustive calibration of the audiometer.
e. The employee's most recent noise exposure assessment.
f. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Upon request, employees may have access to these records.

Hearing Protectors

At no cost, and replaced as necessary, hearing protectors will be provided to all employees exposed to an 8-hour time-weighted average of 85 dB or greater.

Ear protective devices inserted in the ear will be fitted or determined individually by competent persons.

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Appropriate hearing protectors will be available in a variety of styles from which to choose to provide a comfortable fit and employees will be made aware of the proper use and care of the protectors selected.

In selecting appropriate hearing protectors, Matt Landers will consider the below factors:

a. The hearing protector's noise reduction rating (Subject Fit) [NRR(SF)].

   Note: The NRR(SF), measured in dB and found as a number on the hearing protector, can be used by subtracting that number from an A-weighted sound level or a time-weighted average noise exposure to determine the level of protection for most (84%) of the users.

   Note: The NRR(SF) is based on tests of continuous noise and may not be an appropriate indicator for protection against impulse or impact noise.

b. The user's daily equivalent noise exposure.
c. Variations in noise levels.
d. User preference.
e. Communication needs.
f. Hearing ability.
g. Compatibility with other safety equipment.
h. User's physical limitations.
i. Climate and other working conditions.
j. Replacement, care, and use requirements.

Hearing Protector Attenuation

LNE Electric will evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. We will use one of the evaluation methods described in 29 CFR 1910.95 Appendix B: Methods for Estimating the Adequacy of Hearing Protection Attenuation.

Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph 29 CFR 1910.95(b) of this section.

For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

The adequacy of hearing protector attenuation will be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. We will provide more effective hearing protectors as necessary.

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Training

Affected employees (those exposed to action level noise) will receive training in our Hearing Conservation Program and this training will be repeated annually. Training will be updated to be consistent with changes in the PPE and work processes. **An employee who is required to wear hearing protectors and fails to do so will be retrained** with emphasis on the needless and permanent damage to hearing caused by careless exposure to hazardous noises in the work environment.

Interactive training will include, but not be limited to:

a. The effects of noise on hearing.
b. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.
c. The purpose of audiometric testing and an explanation of the test procedures.
d. A review of the program including all appropriate standards.

Process of Hearing

Hearing involves, in its simplest terms, conducting sounds from outside your body to your brain. The ear is divided into three main sections:

a. EXTERNAL EAR	collects sound and directs them to the tympanic membrane (ear drum).

Major Components:

Pinna:	the visible part of the ear.
External auditory canal:	approximately 1¼ inch tube to direct sound to the eardrum.
Tympanic membrane:	vibrates as it is hit with incoming sounds.

b. MIDDLE EAR	air filled space that connects outer ear to inner ear.

Major Components:

Ossicles:	three bones commonly called the “hammer”, the “anvil”, and the “stirrup”. These bones collect the sound, amplify it, and transfer it to the fluid in the inner ear.
Eustachian tube:	small tube connected to the throat that brings air into the middle ear allowing pressure equalization of both sides of the ear drum.

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c. INNER EAR — transfers sound vibrations to nerve impulses and sends them to the brain.

Major Components:

Vestibule: helps maintain balance.

Cochlea: takes vibrations of the middle ear bones and transfers them into nerve impulses that go the brain. The stirrup, in the middle ear, vibrates through a small opening in the cochlea. This opening is connected to fluid filled canals. The pressure waves in the fluid cause small hair type cells to bend. As they bend, they release a nerve impulse which is sent to the brain. The brain perceives these impulses as sound. This is where noise induced hearing loss occurs.

Semicircular canals: involved with equilibrium (balance)

Acoustic nerve:

a. cochlear nerve: connects the cochlea to the brain.
b. vestibular nerve: connects the semicircular canals to the brain.

Noise Induced Hearing Loss (NIHL)

Moderate exposure to loud noise (over 90 dB for one or more hours) may cause **reversible** changes within the inner ear such as: subtle intracellular changes in the hair cells or swelling of the auditory nerve endings. These temporary changes present themselves as temporary threshold shifts (TTS) 10 dB or more at various frequencies in either ear. This temporary hearing loss will go away within hours -- 16 hours maximum.

How this loss may occur is as follows: continued sound may decrease the stiffness in the hair bundles at the top of the hair cells in the inner ear. This in turn would cause less vibration at a given sound level and an accompanying loss in hearing.

However, continued exposure to loud noise over time will result in permanent threshold shift (PTS) and the resultant permanent, **non-reversible** hearing loss.

Additionally, the most common cause of tinnitus (an annoying ringing in the ears) is damage to the ear from noise exposure resulting in hearing loss.

Because the loss of hearing is so gradual, so painless, so unnoticeable, there may be a tendency to not take hearing conservation seriously until it is too late and you have lost one of your major contacts with the world around you – your hearing.

Why bother with a Hearing Conservation Program? Why not, instead, just require hearing protectors at all times, in all situations?”

This misses the point. Your hearing – just as your sight, touch, and smell – is your means of contact and placement in the world around you. By wearing hearing protectors when not needed, you lessen your ability to hear and be in touch with your environment.

You certainly wouldn’t want to save your hearing and lose your life because you didn’t hear the warning “Watch out!”, “Stop!” or you missed the sound of approaching danger.

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Hearing Conservation Program Recordkeeping

The below records will be retained.

a. All noise level monitoring records.
b. All employee exposure measurements.
c. All employee audiometric test records which will include:
    1. The employee’s name and job classification.
    2. The date of the audiogram.
    3. The examiner's name.
    4. The date of the last acoustic or exhaustive calibration of the audiometer.
    5. The employee's most recent noise exposure assessment.
    6. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Record Retention:

The below records will be retained at least for the period indicated:

Noise exposure measurement records will be retained for two years.

Audiometric test records will be retained for the duration of the affected employee's employment.

Access to Records:

All the above records will be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary.

Transfer of Records:

If we cease to do business, we will transfer to the successor employer all above records and the successor employer will retain them for the remainder of the period noted above.

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Personal Protective Equipment - Respiratory Protection

29 CFR 1910.134 - Respiratory Protection

29 CFR 1910.134 App C - OSHA Respirator Medical Evaluation Questionnaire

Overview

The best respiratory protection one can have is clean, breathable air. Engineering controls are our first line of defense against contaminated or oxygen deficient air. These controls include, but are not limited to, using measures such as enclosure or confinement to keep atmospheric hazards away from employees, general or local ventilation to exhaust hazardous atmospheres, and/or substitution of less toxic materials to avoid hazardous atmospheres in the first place. When effective engineering controls are not feasible, or during the time frame they are being instituted, appropriate respirators will be used.

The concept of respiratory protection is quite simple. Certain types of atmospheric hazards are simply particles that can be filtered out of the air, through the use of an air-purifying respirator. Air-purifying respirators force the harmful particles into a filter specifically designed for the hazard(s) where they are trapped or absorbed. The air reaching the employee's lungs is essentially free of the hazard.

a. If the action of inhalation causes the ambient air to be sucked through the filter, the respirator is considered a negative pressure respirator.

b. If the ambient air is forced through the respirator filter (with a blower, for example), the respirator is considered a positive pressure respirator.

A respirator that removes harmful contaminants is of no value in an oxygen deficient (less than 19.5% oxygen) or oxygen enriched (more than 23.5 % oxygen) atmosphere.

An atmosphere-supplying respirator will be used in oxygen deficient atmospheres or in atmospheres where a filter cannot reduce the particulate hazard to an acceptable level. This type of respirator provides clean, breathable air from a source independent of the ambient atmosphere.

Different types of respirators provide different levels of protection. **Never** may an air-purifying respirator be substituted for a required atmosphere-supplying respirator.

Unfortunately, respiratory protection is more complicated than it first appears. Because of the variety and severity of respiratory hazards, the types of respirators and their limitations, the methods for fitting and testing, and, most importantly, the detrimental ramifications of respirator misuse, this respiratory protection program is required.

Proper respirator selection and use can prevent occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, and vapors. In atmospheres that are immediately dangerous to life or health, proper respirator selection and use will save your life.

When required, employees will be supplied appropriate respirators and all incidental costs associated with respirator use (fit testing, repair parts, filters, medical examinations, cleaning supplies, etc.) will be borne by the company.

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Duties of the Program Administrator

Matt Landers, our Respiratory Protection Program Administrator, will keep abreast of developments in the respiratory protection field and ensure that our personnel are provided safe respiratory working conditions.

Additionally, Matt Landers will:

a. Measure, estimate, or review data on the concentration of airborne contaminants in the work area prior to respirator selection.
b. Select the appropriate type of respirator that will provide adequate protection from the airborne contaminants or provide clean, breathable air.
c. Maintain applicable records including:
    1. Fit test record
    2. Medical records
    3. Inspection records
    4. Evaluation records
    5. Training records

Definitions

There are a number of terms and phrases, not used in ordinary everyday life, which must be understood by affected employees.

Air-Purifying Respirator means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Atmosphere-Supplying Respirator means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or Cartridge means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand Respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency Situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee Exposure means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-Service-Life Indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-Only Respirator means a respirator intended to be used only for emergency exit.

Filter or Air-Purifying Element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

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Filtering Facepiece (DUST MASK) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit Factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit Test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately Dangerous to Life of Health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Loose-Fitting Facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Negative Pressure Respirator (Tight Fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen Deficient Atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

Physician or Other Licensed Health Care Professional (PLHCP): an individual whose legally permitted scope of practice allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required medical evaluation.

Positive Pressure Respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered Air-Purifying Respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure Demand Respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative Fit Test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative Fit Test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory Inlet Covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

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Self-Contained Breathing Apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service Life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-Air Respirator (SAR) or Airline Respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-Fitting Facepiece means a respiratory inlet covering that forms a complete seal with the face.

User Seal Check means an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

Respirator Selection

Respirators will be selected on the basis of hazards to which the employee will be exposed. Using an inappropriate respirator is just as bad, if not worse, than using no respirator at all because it can evoke a false sense of security while offering no protection to the hazard at hand.

All respirators will be NIOSH approved.

Work area surveillance will be made by Matt Landers taking into consideration the actual work area conditions, the degree of exposure and employee stress.

Respirator selection will take into consideration the air quality, the contaminant, the amount of the contaminant, the time exposure to that contaminant, and the work area surveillance.

Oxygen-deficient atmospheres as well as atmospheres in which the respiratory hazard exposure cannot be determined are considered immediately dangerous to life or health and the use of one of the below listed respirators is required:

a. A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
b. A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

Note: Respirators provided only for escape from IDLH atmospheres will be NIOSH-certified for escape from the atmosphere in which they will be used.

Generally, but not always, work area atmospheres that require respiratory protection are not IDLH and in these cases respirator selection offers more options. The respirator selected will be 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. Of course, the respirator selected will be appropriate for the chemical state and physical form of the contaminant.

For protection against gases and vapors, the respirator provided will be:

a. Atmosphere-supplying.
b. Air-purifying, provided that:
    1. It 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 respiratory hazard area, a change schedule for canisters and cartridges will be used that is based on objective data that will ensure that canisters and cartridges are changed before the end of their service life.

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Matt Landers will rely on past experience and cartridge manufacturer recommendations. If the competent person on site or any respirator user notices that breathing becomes more strained, the change schedule will be modified.

For protection against particulates, the respirator provided will be:

a. Atmosphere-supplying; or
b. Air-purifying equipped with a filter certified by NIOSH under 30 CFR part 11 like a HEPA filter; or

Note: Filters manufactured under 30 CFR part 11 standards may continue to be used, however, as of July 10, 1998, other than PAPR's, they are not to be purchased. Only 42 CFR part 84 type filters will be used.

c. Air-purifying equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

Note: These respirators and filters, other than PAPR's are identified on the packaging with numbers that take the form: TC-84A-XXX.

a. Filters will have an "N", "R", or "P" designation followed by "100", "99" or "95." Examples: N100 or R99

1. "N" indicates the filter is for any solid or non-oil containing particulate contaminant.

2. "R" indicates the filter is for any particulate contaminant. If used for an oil containing particulate, a one shift use limit applies.

3. "P" indicates the filter may be used with any particulate contaminant.

b. The number indicates the filter efficiency -- the higher the number, the more efficient. 100 = 99.97% efficiency; 99 = 99% efficiency; and 95 = 95% efficiency.

1. Air-purifying equipped with any filter certified for particulates by NIOSH for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers.

Often, the permissible exposure limit (PEL) and suggested respirator is listed on an SDS. Published exposure limits for the contaminant at hand will assist in determining respirator selection.

Matt Landers will select respirators based on:

a. The nature of the hazardous operation or process.
b. The type of respiratory hazard including permissible exposure limits.
c. The period of time for which respiratory protection must be worn.
d. The activities of workers in the hazardous area.
e. The respirator's characteristics, capabilities, and limitations.

Particulate Respirator Selection

Prior to respirator selection, the following factors must be known:

a. The identity and concentration of the particulates in the work area air.
b. The permissible exposure limit (PEL), the NIOSH recommended exposure limit (REL) or other occupational exposure limit.
c. The hazard ratio (HR). The (HR) is obtained by dividing the airborne particulate concentration by the exposure limit.

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d. The assigned protection factor (APF) for the type of respirator to be used. The (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, or to 10% of the work area concentration.
e. The immediately dangerous to life or health (IDLH) concentration, including oxygen deficiency.

The APF should be greater than the HR and multiplying the occupational exposure limit by the APF gives the maximum work area concentration in which the respirator may be used.

All filters will have a 99.97% efficiency rating indicated by the number 100.

Service Life of Filters

If the selected filters have an end-of-service-life indicator (ESLI), the filters will be used until the indicator shows that it is time to be replaced.

In the absence of an ESLI, the following is our policy of service life of filters:

All HEPA filters manufactured under 30 CFR part 11 (for PAPR's) will be replaced at least daily (once each work shift) or if breathing resistance becomes excessive or if the filter suffers physical damage (tears, holes, etc.) If PAPR filters become available under 42 CFR part 84 standards, they will be used and fall under the below schedule:

All filters will be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.

N-series filters may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the work area to be exceptionally dirty, the filters will be changed each work shift.

R-series filter will be changed every work shift if oil is present. If oil is not present, they may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the work area to be exceptionally dirty, the filters will be changed each work shift.

P-series filters will be used and reused in accordance with the manufacturer's time-use limitations when oil aerosols are present.

P-series filters can be used and reused subject only to consideration of hygiene, damage, and increased breathing resistance if oil aerosols are not present.

Medical Approval for Respirator Use

Before respirator use – even before fit testing – it must be determined that one is physically capable to wear the type of respirator to be assigned. Wearing negative pressure respirators can place an increased strain on one's respiratory system, and, depending on the task and the environmental conditions (especially heat and cold), respirators can put an additional strain on your whole body. Prior to respirator use, an employee must have a medical examination. The actual medical tests, if any, depend on the hazards involved, the condition of the employee, and the judgment of the physician or other licensed health care professional (PLHCP). If respirators are used to prevent exposure to certain toxic and hazardous substances (for example, lead or asbestos), then additional medical tests and surveillance procedures are required appropriate for the hazard.

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A PLHCP will be identified to perform medical evaluations using the medical questionnaire with this program. The PLHCP will be given a copy of this program as well as the appropriate standards.

A follow-up medical examination will:

a. Be given to an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination.
b. Include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

The medical questionnaire and examinations will be given confidentially during normal working hours or at a time and place convenient to the employee. The employee will be given the opportunity to discuss the questionnaire and examination results with the PLHCP.

The PLHCP will be provided the following information to be used in determining an employee's ability to use a respirator:

a. The type and weight of the respirator to be used by the employee.
b. The duration and frequency of respirator use.
c. The expected physical work effort.
d. Additional protective clothing and equipment to be worn.
e. Temperature and humidity extremes that may be encountered.

An annual review of medical status is not required and additional medical evaluations are required only if:

a. An employee reports medical signs or symptoms that are related to ability to use a respirator.
b. A PLHCP, supervisor, or Matt Landers determines that the employee needs to be reevaluated.
c. Fit testing and work area program evaluation indicates a need.
d. A change occurs in work area conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

A negative pressure respirator may place an undue burden on an employee’s system and the PLHCP may recommend a PAPR be used instead.

Medical records will be retained for 30 years.

Once medical approval is received allowing the respirator use, fit testing may proceed. The employee will be provided with a copy of this determination.

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Respirator Fit Test

There are various protocols for fit testing respirators and they can be found in 29 CFR 1910.134 App A. One (1) of the four (4) qualitative protocols listed below will be used:

Protocol/Fit Test Procedure	Appendix A to 29 CFR 1910.134
a. Isoamyl Acetate Fit Test Procedure	Paragraph B2 Paragraph B2(b)
b. Saccharin Solution Aerosol Fit Test Procedure	Paragraph B3 Paragraph B3(b)
c. BitrexTM Solution Aerosol Fit Test Procedure	Paragraph B4 Paragraph B4(b)
d. Irritant Smoke (Stannic Chloride) Fit Test Procedure	Paragraph B5 Paragraph B5(b)

The purpose of fit testing is to ensure that the respirator selected will actually do the job for which it was intended. Different manufacturers make different sizes of each model. Fit testing, following the OSHA approved protocols, will ensure that the specific make, model and size are appropriate for the user. An employee may only use the specific respirator(s) on which he/she has passed a fit test.

Eyeglasses pose special problems when dealing with respirators. Normal eyeglasses, while they do not interfere with the skin to facepiece seal of a ½ face respirator, will prevent a proper seal on a full face respirator and thus will not be worn. If glasses are needed, special adapters can be provided to hold lenses within the respirator.

Upon successful completion of respirator fit testing, a Record of Respirator Fit Test form will be completed and maintained with the employee's records. Only the latest fit test record need be retained. The Respirator Fit Test will be repeated at least annually or when:

a. A different respirator facepiece (size, style, model or make) is used.
b. There has been a weight change of at least 20 pounds.
c. There has been significant facial scarring in the area of the face piece seal.
d. There have been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
e. Reconstructive or cosmetic surgery.
f. Any other condition that may interfere with facepiece sealing.

As explained in the protocols, the fit tests will not be conducted if there is any hair growth between the skin and the facepiece sealing surface. Further, there will not be mustaches that are so long as to interfere with the inlet or exhaust valves in the respirator. Of course, these requirements apply not only to fit testing procedures, but they also apply to actual on the job use where the seal between face and respirator must be maintained.

User Seal Check

A user seal check, performed in accordance with the manufacturer's instructions or **29 CFR 1910.134 App B**, will be made prior to each use by the wearer of a tight-fitting respirator.

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A user seal check is solely for respiratory protection of the employee and without this check there is no way of knowing if the selected respirator is actually working. Failure to perform a seal check may result in the use of a respirator which is of little or no value.

Hazard Communication & Emergency Procedures

One would not be wearing a respirator in the first place if there were not some detrimental health consequences of non-use. Often, these consequences are chronic (long term) and immediately unnoticeable.

If respirator failure would lead to noticeable physical or mental impairment, then, in these situations, two (2) employees will be assigned in the same area and in view of each other. If one employee presents symptoms of physical or mental distress, the second employee will remove the first employee from the area. If there is not an immediate, total recovery, the affected employee will be provided medical care by emergency responders.

In the event work is being performed in an IDLH atmosphere, a safety harness and safety lines will be used so that the employee may be pulled to safety. Suitable rescue equipment will be available and a standby man or men with suitable self-contained breathing apparatus will be at the nearest fresh air base for emergency rescue.

All personnel should be aware of the appropriate SDS for the products they are working with, and particular attention should be given to health hazards; both acute and chronic, symptoms of overexposure, first aid measures, emergency procedures, and exposure limits.

Work Area Surveillance

The competent person at the work area where respirator use is required will maintain appropriate surveillance 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, Matt Landers or competent person will re-evaluate the continued effectiveness of the respirator.

Employees are to leave the respirator use area:

a. To wash their face and respirator facepiece as necessary to prevent eye or skin irritation associated with respirator use.
b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
c. To replace the respirator or the filter, cartridge, or canister elements.

Defective respirators will be repaired or replaced before returning to the respirator use area.

Air Quality

Atmosphere-supplying respirators, depending on the type (supplied-air or SCBA) use compressed air, compressed oxygen, liquid air or liquid oxygen. Compressed and liquid oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen. Compressed breathing air must meet the requirements of Grade "D" breathing air including: oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor. Compressed oxygen will not be used in supplied-air respirators or open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with airline respirators.

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Breathing air may be supplied to respirators from cylinders or air compressors. If cylinders are used, they will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 178).

If a compressor is used for supplying breathable air by way of airline hoses to a respirator mask, it is a Type "C" system. The hose couplings used on these systems must not be compatible with any other gas systems. Breathable air -- not pure oxygen -- is used in these systems. All safety and standby devices will be maintained in working order such as alarms to warn of compressor failure or overheating. Compressors will be located so that contaminated air does not enter the system and suitable in-line filters will be installed. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in the event of a compressor failure will be in place. If an oil lubricated system is used, it will have a high temperature and carbon monoxide alarm.

Cleaning, Inspection, and Maintenance

Respirators issued for the exclusive use of one worker will be cleaned and disinfected after each day's use or more often, if necessary. A respirator used by more than one person will be cleaned and disinfected after each use by the employee who used it. Cleaning should be done using the manufacturer’s recommendations or the guidelines in 29 CFR 1910.134 App B. Remove or protect the filters/cartridges before cleaning because moisture can defeat the effectiveness of a filter. During cleaning, an inspection of the respirator will be made to ensure it retains its original effectiveness. Valves, straps, canisters, elasticity, facepiece, if applicable, will be inspected per the manufacturer’s instructions. Defective parts will be replaced before reuse.

Employees who use respirators will be instructed in the replacement of parts as allowed by the manufacturer (such as valves and straps). Respirators that require a higher level of repair will be returned to the manufacturer. All replacement parts will be of the same manufacture as the respirator and all replacement parts will be NIOSH approved. Maintenance will be limited to replacing parts (straps, filters, valves, etc.) allowed by the manufacturer. Only respirators in 100% working order will be used.

Cleaning supplies and replacement parts will be provided at no cost. In the event a respirator is not used for thirty (30) days, it will be inspected by a competent person. Particular attention will be paid to SCBA apparatus and Type "C" connections. SCBA apparatus will be inspected monthly and air and oxygen cylinders will be fully charged according to the manufacturer’s instructions. All warning devices will be checked to ensure they are properly functioning.

Maintenance of Emergency/Unassigned Respirators

Emergency and unassigned respirators (respirators used by more than one person) will be cleaned and inspected for defects every thirty (30) days and after each use. Particular attention will be given to the elasticity of the respirator and ensuring that the respirator is defect free. Only the latest record of this inspection will be maintained. A tag showing the name of inspector, the date, and condition of the respirators will be attached to the respirator.

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Storage of Respirators

Respirators will be stored in a convenient, clean, and sanitary location in such a manner as to protect them from dust, heat, sunlight, extreme cold, excessive moisture, and damaging chemicals. In the work area, a plastic bag can help protect a respirator from dust and moisture. Respirators will not be stored in lockers or toolboxes unless they are in cases or cartons. Respirators will be stored with the facepiece and exhalation valve resting in a normal position. This will also prevent the soft, pliable material of which respirators are made from setting in an abnormal position, changing shape, and reducing face to mask seal.

Program Evaluation

This Program will be evaluated on a continual basis and updated if the need arises. Reasons for upgrading would include new atmospheric hazards; new respiratory protection equipment; new or altered work procedures; the introduction of new engineering controls; the failure of employees to follow standard operating procedures.

Often, the effects of breathing contaminated atmospheres are chronic in nature & thus some employees may tend to become lax in using their respirators properly. Supervisors must be on alert for this tendency.

Employees must realize that they must use the provided respiratory protection in accordance with the instructions and training received.

Training

Training will be given by a competent person, prior to use, to ensure each affected employee can demonstrate knowledge of at least the following:

a. Why a respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
b. What the limitations and capabilities of the respirator are.
c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
d. How to inspect, put on and remove, use, and check the seals.
e. The procedures for maintenance and storage of the respirator.
f. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
g. The general concepts of this program.

Retraining will be given annually and when:

a. Changes in the work area or the type of respirator render previous training obsolete.
b. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee lacks the required understanding or skill.
c. A situation arises in which retraining appears necessary to ensure safe respirator use.

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Dust Masks – Use of Respirators when Not Required

Matt Landers, or a competent person in the work area, will determine when respirator use is **required**. Dust masks may be used at any time to reduce annoying particles in the air in the work area.

An employee who wants to wear an actual respirator in the work area for comfort or an additional level of safety that is **not required** for health reasons according to standards, must obtain medical approval for respirator use according to the procedures outlined in this program.

Additionally, that employee should read this program (formal training is not required) and:

a. Read and heed all manufacturers' instructions on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
b. Choose a respirator certified for use to protect against the contaminant of concern. The respirator must be NIOSH approved.
c. Not wear the respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. A respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
d. Not interchange the respirator with another employee.

Disposable Respirators:

OSHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by OSHA standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of 29 CFR 1910.134 Appendix D.

All disposable respirators, such as Moldex, 3M, Wilson, North Safety, etc. must be marked with the manufacturer's name, the part number, the protection provided by the filter, and "NIOSH".

Disposable filters are actually negative pressure respirators. They protect the user by filtering particles out of the air breathed.

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer's instructions.

Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.

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Standard Number: 1910.134 App D

Standard Title: (Mandatory) Information for Employees Using Respirators When not Required Under 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, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following: 1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations. 2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. 3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke. 4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

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LNE Electric

Respiratory Protection Program Evaluation Form

Matt Landers, or a designated competent person, will conduct work area and administrative evaluations to ensure the provisions of our respiratory protection program are being properly implemented. Discrepancies noted will be immediately corrected.

A random sampling of affected personnel addressed the below listed concerns and the responses are indicated below:

	Yes	No
Is the respiratory protection program understood?	☐	☐

Problem areas: _____

Corrective action: _____

_____

Do respirators fit without interfering with job performance?	☐	☐

Problem areas: _____

Corrective action: _____

_____

Are respirators being properly maintained?	☐	☐

Problem areas: _____

Corrective action: _____

_____

Are appropriate respirators selected for the hazard?	☐	☐

Problem areas: _____

Corrective action: _____

_____

_____ _____

(Signature of Person performing evaluation) **(Date)**

Note: Retain only the latest evaluation.

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LNE Electric

Report of Medical Examination

_____
(Date)

_____
(Applicant's Name)

Job for which person is being examined: _____

Reason for medical examination: Respirator use.

Type(s) of respirator to be used: _____

Atmospheric hazards for which the above respirators will be used: _____
_____ _____ _____

Note: Circle the appropriate paragraphs and subparagraphs.

1. Based on the information available to me, it is my opinion that the above named person may be placed in the job position with no restrictions in work assignments.
2. Based on all the information available to me, it is my opinion that the above named person has a detected medical conditions(s) or finding(s) which:
    a. Places this person or others at increased risk of material impairment of health from anticipated or potential occupational exposures or activities.
    b. May be aggravated by occupational exposures or activities.
    c. May interfere with safe and/or effective performance.
    d. Needs follow-up. This includes changes which may be with "normal limits" based on the current assessment and/or comparison with previous results. Based on available data, the casual relationship of these findings to occupational exposures appears to be positive/negative/ill defined.
    e. Other: (Explain) _____
3. On the basis of the above, I recommend:
    a. No restrictions in work assignments for the above job.
    b. Restricted activities: (List) _____
    c. Limited exposure: (Note) _____
    d. Special protective measures: (Note) _____
    e. Medical follow-up: (Note) _____
    f. Limitation on the use of a negative pressure or air purifying respirator: (Explain) _____
    _____
    g. Other: (Note) _____

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4. I have advised the employee of any detected medical condition of finding which dictates further medical examination or treatment and have appropriate recommendations regarding medical follow-up and exposure. This will be documented in writing.

5. Additional comments: _____

_____

_____

_____

_____

6. I understand that a copy of this report will be given to the examinee by the person receiving it.

DATE: _____ _____

(Physician's Signature)

_____

(Address)

_____

(City, State, ZIP)

_____

(Telephone Number)

Return this form to:

LNE Electric
Matt Landers
9260 Sw 146th Terr #8
Beaverton, OR, 97007
9713928688

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LNE Electric

Medical Opinion for Respirator Use

_____
(Date)

_____
(Applicant's Name)

TO: Return this form to:

LNE Electric
Matt Landers
9260 Sw 146th Terr #8
Beaverton, OR, 97007
9713928688

RE: Medical Opinion for Respirator Use

On this date, based on the employee medical questionnaire and/or further medical examination, the above named applicant is found to be:

a. Eligible to use a respirator._____
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

_____
_____
_____

b. Eligible to use a respirator with the following restrictions:

_____
_____
_____
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

c. Not eligible to use a respirator.

_____
(Signature of physician or licensed healthcare professional)

_____
(Typed or Printed Name)

_____
(Street Address)

_____
(City, State, ZIP)

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Respirator Fit Test Summary

Name of employee: _____

Date of Testing: _____ Test Conducted By: _____

Respirator(s) Selected: _____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ ____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ ____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Testing Agent (Protocol): Circle One

a. Isoamyl Acetate Protocol. (Banana Oil)
b. Saccharin Solution Aerosol Protocol. (Saccharin Taste)
c. BitrexTM Solution Aerosol Protocol (Denatonium Benzoate)
d. Irritant Smoke Protocol. (Irritant Smoke)

Signature of Person Conducting the Test: _____

Signature of Employee: _____

The Respirator Fit Test will be repeated at least annually or when:

a. A different respirator facepiece (size, style, model or make) is used.
b. There has been a weight change of at least 20 pounds.
c. There has been significant facial scarring in the area of the face-piece seal.
d. There has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
e. Reconstructive or cosmetic surgery.
f. Any other condition that may interfere with facepiece sealing.

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LNE Electric

Record of Inspection
Emergency/Unassigned Respirators

All emergency and unassigned respirators were inspected and cleaned on the date indicated. Any defects found were corrected or the respirator was removed from service. This inspection was performed after each use and/or monthly.

Date	Signature of Inspector	Notes

Note: Only the latest record must be retained.

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Prevention of Heat and Cold Stress

Prevention of Cold Stress

Cold related work illness is a real threat to employees at LNE Electric who work outside during months of cold weather. In order to lessen this threat, this program has been prepared.

All current employees will be given instruction in this program prior to working outside where the possibility of frostbite and hypothermia exist.

On days when applicable environmental conditions exist (**temperatures or wind chill factors equal to or less than 30 degrees F**), the site supervisor will, before the morning shift starts, remind workers of the danger of frostbite and hypothermia, the procedures to lessen its impact, and, in the worst case, the procedure for medical response.

All persons should recognize the symptoms of cold related illness.

Frostbite

Sensations of coldness; tingling, stinging or aching feeling of the exposed area followed by numbness of ears, fingers, toes, cheeks, and noses. Frostbitten areas appear white and cold to the touch.

Seek medical assistance immediately.

Frostbitten parts should be covered with dry, sterile gauze or soft, clean cloth bandages.

Do not massage frostbitten tissue.

Take measures to prevent further cold injury.

General Hypothermia

Shivering, an inability to do complex motor functions, lethargy, and mild confusion.

Conserving remaining body heat.

Providing additional heat sources.

Seek medical assistance for persons.

Severe Hypothermia

Unresponsive and not shivering.

Seek medical attention immediately.

Reduce heat loss by:

a. Obtaining shelter.
b. Removal of wet clothing.
c. Adding layers of dry clothing, blankets, or using a pre-warmed sleeping bag.

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds, dampness and cold water. Wind chill, a combination of temperature and velocity, is a crucial factor to evaluate when working outside. For example, when the actual air temperature of the wind is 40°F (4°C) and its velocity is 35 mph, the exposed skin receives conditions equivalent to the still-air temperature being 11°F. A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures.

The purpose of this program is to take definitive measures prior to the onset of cold related illnesses so that medical response will not be necessary. If the above conditions do present themselves, the supervisor, who will always have access to a mobile phone, will follow our standard emergency procedures.

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Definitive measures to prevent cold related illness include:

Personal Protective Clothing

Personal Protective Clothing is the most important step in fighting the elements is providing adequate layers of insulation from them. Wear at least three layers of clothing:

a. An outer layer to break the wind and allow some ventilation (like Gore-Tex® or nylon);
b. A middle layer of wool or synthetic fabric (Qualofil or Pile) to absorb sweat and retain insulation in a damp environment. Down is a useful lightweight insulator; however, it is ineffective once it becomes wet.
c. An inner layer of cotton or synthetic weave to allow ventilation.

Pay special attention to protecting feet, hands, face, and head. Up to 40% of body heat can be lost when the head is exposed. Footgear should be insulated to protect against cold and dampness. Keep a change of clothing available in case work garments become wet.

Engineering Controls

Engineering Controls help reduce the risk of cold-related injuries.

a. Use an on-site source of heat, such as air jets, radiant heaters, or contact warm plates.
b. Shield work areas from drafty or windy conditions.
c. Provide a heated shelter for employees who experience prolonged exposure to equivalent wind-chill temperatures of 20°F or less.
d. Use thermal insulating material on equipment handles when temperatures drop below 30°F.

Safe Work Practices

Safe Work Practices, such as changes in work schedules and practices, are necessary to combat the effects of exceedingly cold weather. Possible workable safe practices include:

a. Allowing a period of adjustment to the cold before embarking on a full work schedule.
b. Permitting employees to set their own pace and take extra work breaks when needed.
c. Reducing, as much as possible, the number of activities performed outdoors. When employees must brave the cold, selecting the warmest hours of the day and minimize activities that reduce circulation.
d. Ensuring that employees remain hydrated.
e. Establishing a buddy system for working outdoors.
f. Educating employees to the symptoms of cold-related stresses – heavy shivering, uncomfortable coldness, severe fatigue, drowsiness, or euphoria.

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Provision of Water

Employees will have access to adequate quantities of potable drinking water.

Where the supply of water is not plumbed or otherwise continuously supplied, water will be provided in sufficient quantity.

Supervisor will provide frequent reminders to employees to drink frequently, and, if needed, more water breaks will be provided.

Drinking water will be dispensed in containers with a tight sealing lid and labeled as Drinking Water. Drinking water containers are to be cleaned daily. Water containers will be placed as close as possible to the workers.

Supervisors will monitor water consumption and water supply and ensure adequate levels are available to last the whole shift.

Disposable/single use drinking cups will be provided to employees.

Supervisors will remind employees that personal military style canteens may be worn containing water. In cold weather conditions, employees are encouraged to drink warm, sweet beverages (sugar water, sports-type drinks). They should avoid drinks with caffeine (coffee, tea, or hot chocolate). Employees are cautioned, however, that sharing water from a personal canteen is forbidden and, because of the health hazard to the user and the person with whom it is shared, disciplinary action will be taken against both employees if they drink out of the same container. This disciplinary action will be documented using our disciplinary enforcement form.

Training

All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept at the work area during applicable periods of cold weather.

All supervisors will read the below informational items prior to utilization of this program and have an opportunity for discussion and clarification with Matt Landers.

OSHA Cold Stress Quick Card 3156

Prevention of Heat Stress

Heat related work illness is a real threat to our employees who work outside during months of high heat and humidity. In order to lessen this threat, this program has been prepared.

All current employees will be given instruction on this program prior to working in heat illness inducing environments or other severe environmental conditions.

On days when applicable environmental conditions exist - periods of hot weather (equal to or greater than 85ºF and 40% Relative Humidity) -the site supervisor will, before the morning shift starts, remind workers of the danger of heat illness, the procedures to lessen its impact, and, in the worst case, the procedure for medical response.

All persons should recognize the symptoms of heat related illness.

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Heat Exhaustion

Fatigue; weakness; profuse sweating; normal temperature; pale clammy skin; headache; cramps; vomiting; fainting

Remove from hot area.

Have victim lie down and raise feet.

Apply cool wet cloths.

Loosen or remove clothing.

Allow small sips of water if victim is not vomiting.

Heat Stroke

Dizziness; nausea; severe headache; hot dry skin; confusion; collapse; delirium; coma and death

Call for immediate medical assistance.

Remove victim from hot area.

Remove clothing.

Have victim lay down.

Cool the body (shower, cool wet cloths)

Do not give stimulants.

The purpose of this program is to take definitive measures prior to the onset of heat exhaustion and heat stroke so that medical response will not be necessary. If the above conditions do present themselves, the supervisor, who will always have access to a mobile phone, will follow our standard emergency procedures.

Definitive measures to prevent heat related illness include:

a. Provision of water
b. Provision of shade
c. Provision of rest (recovery period)
d. Modified work procedures

Provision of Water

Water is a key preventive measure to minimize the risk of heat related illnesses. Employees will have access to adequate quantities of potable drinking water.

Where the supply of water is not plumbed or otherwise continuously supplied, water will be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift.

Supervisors will encourage the frequent drinking of water. The supervisor or a designated person will monitor water consumption every 30 minutes. Employees are encouraged to report bad tasting water or low levels of water immediately so the situation can be corrected.

Supervisor will provide frequent reminders to employees to drink water, and, if needed, more water breaks will be provided.

Every morning during conditions where this program is applicable, there will be short tailgate meetings to remind workers about the importance of frequent consumption of water throughout the shift.

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Drinking water will be dispensed in containers with a tight sealing lid and labeled as Drinking Water. Drinking water containers are to be cleaned daily. Water containers will be placed as close as possible to the workers.

Supervisors will monitor water consumption and water supply and ensure adequate levels are available to last the whole shift

Disposable/single use drinking cups will be provided to employees

During extreme conditions, the supervisor will blow an air horn to remind workers to take a water break.

Supervisors will remind employees that personal military style canteens may be worn containing water. Employees are cautioned, however, that sharing water from a personal canteen is forbidden and, because of the health hazard to the user and the person with whom it is shared, disciplinary action will be taken against both employees if they drink out of the same container. This disciplinary action will be documented using our disciplinary enforcement form.

As a reminder of the importance of water to the human system, the following information is supplied:

Fluids

If you heard in advance that this safety meeting was on fluids, you may well have thought that the meeting would focus on the storage, use, clean-up, and possible emergency procedures involved with the liquid chemical products used on or near work areas. You'd be wrong. While the above are important topics and questions related to them should be addressed to the competent person, this safety meeting is about **your** bodily fluids.

From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, it is the most abundant part of you – actually about 65% of you is water.

Drink fluids! From a life process standpoint, what fluid intake is doing is keeping you healthy by allowing your body to maintain its core body temperature at its appropriate level. When your brain senses that cooling action is needed, your body circulates blood to your skin to allow it to cool with the outside temperature. If the water used for sweat is not replaced, a water deficit starts to occur. The millions of chemical reactions taking place in your body at every moment can only occur in the presence of water. The fluids in your body transport nourishment, gases, and waste.

Imagine your body as a water based chemical factory that functions only within a narrow temperature range. An average, healthy person, at rest, has an oral temperature of between 98.6ºF and 100.4ºF. If your body temperature reaches 105.8ºF, convulsions may occur. Your whole central nervous system is impaired when your body temperature raises 9ºF above normal. At 106.0ºF, the thermoregulatory center in your brain fails and, because of damage to your central nervous system, the sweating (cooling) mechanism cuts off when you need it most. It is a vicious circle – the hotter you get, the more heat you generate through metabolism. In fact, at 107.6ºF, cellular metabolism is 50% higher than at normal temperatures.

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Without getting too graphic, here are some of the problems associated with extreme water loss: cells will shrink; the skin will lose its elasticity; skin and mucous membrane cells will dry out; eyeballs will become soft; weight loss will occur; the body temperature will rise; apprehension, restlessness, and even coma may occur; urine will become concentrated; renal shutdown will occur; red blood cells will shrink; **death**.

Stay healthy! Drink water! Water is truly the stuff of life.

Provision of Shade

The supervisor will ensure that employees have access to shade to minimize the risk of heat related illnesses. If natural shade is not available, the supervisor will ensure that sun umbrellas or portable canopies are provided in adequate number. These umbrellas or canopies will be place in close proximity to the work activity (i.e., no more than 50-100 yards).

Ideally, if available, employees will be allowed to get out of the sun by entering an air-conditioned structure such as a building or job trailer. This not only provides shade, it provides a cool, less humid, atmosphere. Any employee who feels the need for shade will protect himself/herself from the sun for a period of not less than 5 minutes.

Lastly, but importantly, persons must provide personal shade in the form of shirts (preferably light colored to reflect the sun). Shirts are required to prevent sunburn, another health hazard.

Provision of Rest (Recovery Period)

While shade and rest often go hand in hand, they are two distinct activities. Any employee who, due to heat, humidity, or exertion under the provisions of this program, may rest for a period of not less than 5 minutes if that employee believes a preventative recovery period is required.

Modified work procedures

The supervisor will make every effort, consistent with our effort to properly perform our job tasks, to modify work procedures. Example would include performing work requiring heavy exertion during the cooler hours of the day, assigning more persons to a job task to lessen the effort required of each, and the use of machinery in lieu of physical effort.

All employees, but new employees in particular, should be allowed to acclimate to hotter weather. It takes a body four to fourteen days to acclimate to hotter weather. Reduced workloads and careful attention to new employees may be required.

Training

All employees will read this program and be given interactive training in its provisions. A copy of this program will be kept at the work area during applicable periods of heat and humidity.

All supervisors may wish to read the below informational items prior to utilization of this program and have an opportunity for discussion and clarification with Matt Landers

The American Red Cross Health & Safety Tips, Heat Related Illness

CAL OSHA Heat Illness Prevention etool.

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Scaffolds

29 CFR 1926.450 - Scope, Application and Definitions Applicable to this Subpart
29 CFR 1926.451 - General Requirements
29 CFR 1926.452 - Additional Requirements Applicable to Specific Types of Scaffolds
29 CFR 1926.454 - Training Requirements
29 CFR 1926 Subpart L App A - Scaffold Specifications
29 CFR 1926 Subpart L App D - List of Training Topics for Scaffold Erectors and Dismantlers
29 CFR 1926 Subpart L App E - Drawings and Illustrations

Overview

Scaffolds are everyday items on most construction sites and their use presents specific hazards – the most common being electrical shock, falls, and falling objects. This program addresses these hazards and provides safety rules for the use of this type of equipment. Affected individuals must be aware of the specific hazards applicable to their work situation and the proper safety procedures for avoiding these hazards.

All scaffold applications require knowledge of: equipment inspection, load capacities, ground conditions, effects of weather, fall protection, potential electrical hazards, and protection from falling objects. It is expected that all personnel understand how to perform work in a safe manner while on a scaffold, recognize unsafe work situations, and effectively deal with them. If you are aware of a scaffold hazard (or any safety hazard), immediately bring it to the attention of your immediate Supervisor or the competent person on the job site.

Scaffold Safety

A scaffold, by definition, is any temporary elevated platform and its supporting structure used for supporting employees or materials or both. Because of the numerous types of scaffolds, the infinite possible combinations of uses, the various surface features on which the scaffold may rest, and the varying conditions in which scaffolds may be used, it would be impossible to detail what to do in every situation. The goal of any safety program – including scaffold safety – is to eliminate the possibility of harm to employees while they are performing their duties.

Only safety harnesses, not belts, will be used in fall protection.

Leading causes for scaffold accidents and injuries are plank slippage, being struck by falling objects, and the actual collapse of the support structure or plankage.

Definitions

There are a number of terms and phrases which must be understood by all employees when dealing with scaffolds. Below are listed important definitions to aid in the understanding of this Program, however they are not all-inclusive. A complete list of definitions, including the many types of scaffolds and their individual components is found in 29 CFR 1926.450.

Body Harness means a design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, & shoulders with means for attaching it to other components of a personal fall arrest system.

Competent Person means one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

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Exposed Power Lines means electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.

Failure means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Guardrail System means a vertical barrier consisting of, but not limited to, toprails, midrails, and posts erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

Landing means a platform at the end of a flight of stairs.

Lifeline means a component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Lower Levels means areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.

Maximum Intended Load means the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

Open Sides and Ends means the edges of a platform that are more than 14 inches away horizontally from a sturdy, continuous, vertical surface (such as a building wall) or a sturdy, continuous, horizontal surface (such as a floor), or a point of access.
Exception: For plastering & lathing operations, the horizontal threshold distance is 18 inches.

Personal Fall Arrest System means a system used to arrest an employee's fall. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

Platform means a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

Qualified Person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Rated Load means the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold equipment.

Scaffold means any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage) used for supporting employees or materials or both.

Unstable Objects means items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees. Examples include, but are not limited to, barrels, boxes, loose brick, and concrete blocks.

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Guidelines for Scaffold Use

All Scaffolds:

Employees who work on any type of scaffold must follow the below listed guidelines:

a. Scaffolds and scaffold components will not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
b. Scaffolds and scaffold components will be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.
c. Damaged or weakened parts will be **tagged out of service** by a competent person and **immediately replaced**. All employees are instructed to comply with all tags.
d. Scaffolds will be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling, or alteration. Such activities will be performed only by experienced and trained employees selected for such work by the competent person. Disciplinary action will be taken for non-qualified personnel modifying/ altering equipment.
e. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and these employees are protected by a personal fall arrest system or wind screens.
f. Personnel may not work on scaffolds covered with snow, ice or other slippery material except to remove the material with extreme care.
g. Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads will be used.
h. Debris will not be allowed to accumulate on platforms.
i. Make-shift devices on top of scaffold platforms will not be used to increase the working level height of employees.
j. Guardrails should have smooth surfaces to prevent puncture, laceration, or snagging injuries.
k. Make-shift parts will not be used. A nail is not a substitute for a pin.
l. Only qualified and/or competent personnel are allowed to modify scaffolding systems.

Supported Scaffolds

Employees who work on supported scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

Each platform unit on all working levels of a scaffold will be fully planked or decked between the front uprights and the guardrail supports and each platform unit will be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide (where feasible.)

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Supported scaffolds must have a height to base (including outrigger supports, if used) width ratio of no more than 4:1 unless restrained from tipping by guying, tying, bracing, or equivalent means. The competent person will direct the procedures for prevention of tipping.

Supported scaffold poles, legs, posts, frames, and uprights must rest on **base plates AND** mud sills or other adequate firm foundation.

Note: Base plates must always be used on supported scaffolds

a. Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
b. Unstable objects cannot be used to support scaffolds or platform units.
c. Unstable objects will not be used as working platforms.
d. Front-end loaders and similar pieces of equipment will not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
e. Fork-lifts will not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.

Supported scaffold poles, legs, posts, frames, and uprights will be plumb and braced to prevent swaying and displacement.

Scaffolds will not be moved horizontally while employees are on them unless they have been designed by a registered professional engineer specifically for such movement or, in the case of mobile scaffolds:

a. The surface on which the scaffold is being moved is within 3 degrees of level and free of pits, holes, and obstructions.
b. The height to base width ratio of the scaffold during movement is two to one or less.
c. Outrigger frames, when used, are installed on both sides of the scaffold.
d. When power systems are used, the propelling force is applied directly to the wheels and does not produce a speed in excess of 1 foot per second.
e. No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
f. Before the scaffold is moved, each employee on the scaffold must be made aware of the move.

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Suspended Scaffolds

Employees who work on suspended scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

All suspension scaffold devices will 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).

Direct connections on suspension scaffolds must be evaluated before use by a competent person who will confirm that the supporting surfaces are capable of supporting the loads to be imposed.

Counterweights will be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated may not be used as counterweights.

a. Only items specifically designed as counterweights will be used as counterweights. Construction material will not be used as counterweights.
b. Counterweights will not be removed from an outrigger beam until the scaffold is disassembled.

The use of repaired wire rope as suspension rope is prohibited.

Wire ropes will not be joined together except through the use of eye splice thimbles and secured by eye splicing or equivalent means.

Wire ropes will be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a wire rope's integrity. Wire ropes will be **replaced** if any of the following conditions exist:

a. Any physical damage which impairs the function and strength of the rope.
b. Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
c. Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
d. Abrasion, corrosion, scrubbing, flattening or peeling causing loss of more than one third of the original diameter of the outside wires.
e. Heat damage caused by a torch or any damage caused by contact with electrical wire.
f. Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

Gasoline-powered equipment and hoists will not be used on suspension scaffolds.

Gears and brakes of power-operated hoists used on suspension scaffolds will be enclosed.

Manually operated hoists will require a positive crank force to descend.

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Guidelines for the Control of Electrical Hazards

To prevent the possibility of electrical shock, neither the scaffold nor any conductive material handled on the scaffold will come closer to exposed and energized power lines as noted below:

Insulated Power Lines		
Voltage	Minimum Distance	Alternatives
Less than 300 volts	3 feet	
300 volts to 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

Un-Insulated Power Lines		
Voltage	Minimum Distance	Alternatives
Less than 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

Scaffolds may be closer to power lines if it is necessary to accomplish the work, but only after the utility company or electrical system operator has been notified of the need to work closer, and the utility company or electrical system operator has de-energized or relocated the lines or installed protective coverings to prevent accidental contact with the lines.

When using 110-volt electrical power tools or lights, ground fault circuit breakers must be used. Electrical extension cords must be inspected for cuts or cracks in the insulation before use.

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Guidelines for the Control of Fall Hazards

Each employee working on a scaffold more than 10 feet above a lower level must be protected from falling to that lower level as noted below:

Scaffold Type	Fall Protection Requirements
Boatswains' Chair, Catenary Scaffold, Float Scaffold, Needle Beam Scaffold, Ladder Jack Scaffold	Personal Fall Arrest System
Single-Point Adjustable, Suspension Scaffold, and a Two-Point Adjustable Suspension Scaffold	Personal Fall Arrest System and a *Guardrail System
Crawling Board (Chicken Ladder)	Personal Fall Arrest System: *Guardrail System or a ¾" diameter grabline or equivalent handhold securely fastened beside each crawling board.
Self-Contained Adjustable Scaffold	*Guardrail System when the platform is supported by the frame structure; by both a Personal Fall Arrest System and a *Guardrail System when the platform is supported by ropes.
Walkway Located within a Scaffold	*Guardrail System installed within 9½" of and along at least one side of the Walkway.
Supported Scaffolds used while performing Overhand Bricklaying	Personal Fall Arrest System or a *Guardrail System (except at the side next to the wall being laid.)
All Other Scaffolds not specified above	Personal Fall Arrest System and a *Guardrail System
***Guardrail Systems must have a minimum 200-pound toprail capacity.**	

Special Precautions for the Prevention of Falling

Planking Requirements:

Plank slippage causes falls and falls cause injuries. Below are requirements for platforms and/or planks used on scaffolds and walkways:

a. Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) will be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide.
    1. Exceptions to the above:
        i. When a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform). In this instance, the platform must be planked or decked as fully as possible and the remaining open space between the platform and the uprights will not exceed 9½", or

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ii. When planking or decking is used solely for walkways or solely for use by personnel erecting or dismantling the scaffold. In these instances, only the planking the competent person establishes as necessary to provide safe working conditions is required.

b. Each scaffold platform and walkway will be at least 18 inches wide.
   1. Exceptions to the above:
      i. Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold will be at least 12 inches wide.
      ii. There is no minimum width for boatswain's chairs.
      iii. Where working areas are so narrow that platforms and walkways cannot be at least 18 inches wide, the platforms and walkways will be as wide as feasible. In these instances, personnel will be protected from fall hazards by the use of guardrails and/or personal fall arrest systems regardless of the height.

c. The front edge of all platforms will not be more than 14 inches from the face of the work unless guardrail systems are erected along the front edge and/or fall arrest systems are used.
   1. Exceptions to the above:
      i. For outrigger scaffolds, the maximum distance from the face of the work will be 3 inches.
      ii. For plastering and lathing operations, the maximum distance from the face of the work will be 18 inches.

d. Each end of a platform unless cleated or otherwise restrained by hooks or equivalent means, will extend over the centerline of its support by at least 6 inches and not more than:
   1. Twelve (12) inches for a platform 10 feet or less in length unless the platform is designed and installed so that the cantilevered* portion of the platform is able to support personnel and/or material without tipping or has guardrails which block access to the cantilevered end.
   2. Eighteen (18) inches for a platform greater than 10 feet in length unless it is designed and installed so that the cantilevered* portion of the platform is able to support personnel without tipping or has guardrails which block access to the cantilevered end.

      Note: Cantilevered portion of the platform is the portion of the platform which extends beyond the support by 12 or 18 inches.

e. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end will rest on a separate support surface. The use of common support members such as "T" sections to support abutting planks or hook-on platforms designed to rest on common support is acceptable.

f. Where platforms are overlapped to create a long platform, the overlap will occur only over supports and will not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.

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g. At 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 will be laid first; platforms which rest at right angles over the same bearer will be laid second on top of the first platform.
h. With the exception that the edges may be marked for identification, wood platforms will not be covered with opaque finishes. Platforms may be coated with wood preservatives, fire-retardant finishes, and slip-resistant finishes as long as the coatings allow the actual wood to be seen. This is so the wood platforms may be inspected for damage and/or deterioration.
i. Scaffold components manufactured by different manufacturers cannot be intermixed unless the components fit together without force and the scaffold's structural integrity, as determined by a competent person, is maintained.
j. Scaffold components made of dissimilar metals will not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component below acceptable levels.

Fall Protection during Erection & Dismantling of Supported Scaffolds

Supported Scaffolds: The competent person must determine the feasibility and safety of providing fall protection for employees erecting and dismantling supported scaffolds.

Suspended Scaffolds: Fall protection for those erecting and dismantling suspended scaffolds is possible because the anchorage points used for supporting the scaffold would certainly support a fall protection system. Therefore, fall protection will be utilized for personnel erecting or dismantling suspended scaffolds.

Guidelines for the Control of Falling Objects

All personnel working on a scaffold must wear hard hats. Further protection from falling objects will be provided, if needed, by toeboards*, screens, or guardrail systems; or through the erection of debris nets, catch platforms, or canopy** structures that contain or deflect the falling objects.

Objects that are too heavy or massive to be prevented from falling by the above measures will be kept away from the edge of the scaffold and secured as necessary to prevent their falling.

Where there is a possibility of falling objects (tools, materials, or equipment), the below safeguards must be implemented:

a. The area below the scaffold to which objects can fall will be barricaded and employees will not be permitted to enter the hazard area, **or**
b. A toeboard will be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below.

When tools, material, or equipment are piled to a height higher than the top edge of the toeboard, the below listed safeguards must be implemented:

a. Paneling or screening extending from the toeboard or platform to the top of the guardrail will be erected for a distance sufficient to protect employees below, **or**
b. A guardrail system will be installed with openings small enough to prevent passage of potential falling objects, **or**

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c. A canopy structure, debris net or catch platform strong enough to prevent passage of potential falling objects will be erected over the employees below.

Note: Toeboards must be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction and be at least 3½" high from the top edge of the walking/working surface. Further, toeboards must be secured to the outermost edge of the platform and not have more than ¼" clearance above the walking/working surface. Toeboards must either be solid or have openings not over 1" in the greatest dimension.

Note: Canopies used for falling object protection must be installed between the falling object hazard and the employees below.

Access

Two feet – 24 inches – is the height at which some sort of access is required to reach a scaffold platform. When a scaffold platform is two (2) feet above or below the point of access (often the ground level), portable ladders, hook-on ladders, ramps, walkways, ladder stands, etc. must be used. Never use a crossbrace as a means of getting on or off a scaffold.

Hook-on and attachable ladders must:

a. Be positioned so they do not tip the scaffold.
b. Have the bottom rung within 24 inches of the supporting level.
c. Have rest platforms at least at 35-foot vertical intervals when used on supported scaffolds.
d. Be designed for use with the scaffold being used.
e. Have a minimum spacing between rungs of 16 ¾ inches and a minimum rung length of 11 ½ inches.

Stairway type ladders have essentially the same requirements except that:

a. The rest platforms must be at the 12 foot (maximum) vertical level.
b. The minimum step width is 16 inches (mobile scaffold stairway-type ladders: 11 ½ inches).
c. Slip-resistant treads are required on all steps and landings.

Stair towers, if used, must have the bottom step within 24 inches of the supporting level and have

a. A toprail and midrail (stair rail) on each side.
b. A landing platform at least 18 inches by 18 inches at each level.
c. A width of 18 inches between stair rails.
d. Slip-resistant surfaces on treads and landings.

Employees must be able to safely get on and off a scaffold platform and at 24 inches, you will need a specific method of access.

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General Versus Specific Scaffold Safety Guidelines

General safety guidelines apply to all situations. In all situations, employees must be aware of:

a. Potential electrical hazards, fall hazards, and falling object hazards and how to eliminate them.
b. The proper use of scaffolds and the proper handling methods of materials on the scaffold being used.
c. The maximum intended load and the load-carrying capacities of the scaffold being used and never exceeding these limits.

Within the broad categories of suspended and supported scaffolds, there are many specific types of scaffolds – each with its own limitations and special characteristics. Each job site has its own unique ground composition on which a supported scaffold is erected, or unique attachment points for suspended scaffolds. The competent person on the job site will instruct affected employees on any unusual or unique items that must be known about a specific circumstance.

Training

Interactive training will be given to all employees who will be performing work on scaffolds by a qualified person; it will focus on the hazards associated with the type(s) of scaffolding used on our job site. At a minimum training will cover fall protection, use, load capacity, and hazards such as falls, electrical, and falling objects and methods to minimize or eliminate those hazards.

For those employees who will be erecting, disassembling, moving, operating, repairing, inspecting, or maintaining our scaffolds, the competent person will provide additional training applicable to their job requirements.

Retraining

Retraining will be provided should new types of scaffolding be introduced, conditions change, standards change, or on-the-job performance indicate that a particular employee has not retained the required proficiency in scaffold safety.

Additionally, retraining will be conducted when changes at the job site present a hazard or when changes in fall protection, falling objects protection, or equipment present a hazard which an employee has not been previously trained.

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LNE Electric

Appendix A - Training

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Training Synopsis

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Control of Hazardous Energy - 29 CFR 1910.147

A complete understanding of the purpose and function of the energy control program and the knowledge and skills required for the safe application, usage, and removal of the energy controls. The training will include the following:

a. Each authorized employee will receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
b. Each affected employee will be instructed in the purpose and use of the energy control procedure.
c. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, will be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.
d. When tagout systems are used, employees will also be trained in the following limitations of tags:
    1. Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock;
    2. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated;
    3. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective;
    4. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace;
    5. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program; and
    6. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

Note: Control of Hazardous Energy Training must be certified and kept up to date. The certification must include the employee's name and dates of training.

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Exposure Control for Bloodborne Pathogens or Other Infectious Materials - 19 CFR 1910.1030

An accessible copy of the regulatory text and an explanation of its contents; a general explanation of the epidemiology and symptoms of bloodborne diseases; an explanation of the modes of transmission of bloodborne pathogens; an explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan; an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials; an explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment; information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment; an explanation of the basis for selection of personal protective equipment; information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge; information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials; an explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow up that will be made available; information on the post exposure evaluation and follow up that the employer is required to provide for the employee following an exposure incident; an explanation of the signs and labels and/or color coding requirements; and an opportunity for interactive questions and answers with the person conducting the training session.

Note: The person conducting the training will be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

Fall Protection - 29 CFR 1926.503

Training must enable each employee to recognize the hazards of falling and explain the procedures to be followed in order to minimize these hazards. Specific training will include: 1) the nature of fall hazards in the work area; 2) the correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used; 3) 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; 4) the role of each employee in the safety monitoring system when this system is used; 5) the limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs; 6) the correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and, 7) the role of employees in fall protection plans.

Note: The latest certification of training must be maintained and include the name of the employee trained, the date(s) of training, and the signature of the competent person who conducted the training or the signature of the employer.

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Hazard Communication - 29 CFR 1910.1200

Employee training will include at least: methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.); the physical and health hazards of the chemicals in the work area; the measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and, the details of the hazard communication program including an explanation of the labeling system and the safety data sheet, and how employees can obtain and use the appropriate hazard information.

Confined Spaces in Construction - 1926 Subpart AA

Training will be provided so that all employees whose work is regulated by 1926 Subpart AA acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. Training will be given to each affected employee: a) before the employee is first assigned duties under this standard; and, b) whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained. The training will establish employee proficiency in the duties required by this standard and will introduce new or revised procedures, as necessary, for compliance with 1926 Subpart AA.

Note: Training must be certified, and the certification must contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification will be available for inspection by employees and their authorized representatives.

Personal Protective Equipment [General] - 29 CFR 1926.28 & 29 CFR 1910.132

Each such employee will be trained to know at least the following: when PPE is necessary; what PPE is necessary; how to properly don, doff, adjust, and wear PPE; the limitations of the PPE; and, the proper care, maintenance, useful life and disposal of the PPE. Each affected employee will demonstrate:

1. An understanding of the training specified above and,
2. The ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

Personal Protective Equipment [Hearing] - 29 CFR 1926.52 & 29 CFR 1910.95

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; and the purpose of audiometric testing, and an explanation of the test procedures.

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Personal Protective Equipment [Respiratory] - 29 CFR 1910.134

Training will ensure that each employee can demonstrate knowledge of at least the following: a) why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; b) what the limitations and capabilities of the respirator are; c) how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; d) how to inspect, put on and remove, use, and check the seals of the respirator; e) what the procedures are for maintenance and storage of the respirator; f) how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and, g) the general requirements of 29 CFR 1910.134 including Appendix D.

Powered Industrial Trucks - 29 CFR 1910.178

If the employee was hired:	The initial training and evaluation of that employee must be completed:
Before December 1, 1999	By December 1, 1999.
After December 1, 1999	Before the employee is assigned to operate a forklift.

Allowed exception to required training: If an operator has previously received training in a topic specified below, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

Forklift operators will receive initial training in the following topics if applicable to our circumstances: a) operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate; b) differences between the truck and the automobile; c) truck controls and instrumentation: where they are located, what they do, and how they work; d) engine or motor operation; e) steering and maneuvering; f) visibility (including restrictions due to loading); g) fork and attachment adaptation, operation, and use limitations; h) vehicle capacity; i) vehicle stability; j) any vehicle inspection and maintenance that the operator will be required to perform; k) refueling and/or charging and recharging of batteries; l) operating limitations;

m) 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 n) surface conditions where the vehicle will be operated; o) composition of loads to be carried and load stability; p) load manipulation, stacking, and unstacking; q) pedestrian traffic in areas where the vehicle will be operated; r) narrow aisles and other restricted places where the vehicle will be operated; s) hazardous (classified) locations where the vehicle will be operated; t) ramps and other sloped surfaces that could affect the vehicle's stability; u) closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust; and, v) other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation. Each operator will be made aware of the requirements of 29 CFR 1910.178.

Note: Trainees may operate a forklift only:

a. **Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and**
b. **Where such operation does not endanger the trainee or other employees.**

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Training will consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

All operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train forklift operators and evaluate their competence.

The employer will certify that each operator has been trained and evaluated as required above. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

Ladders - 29 CFR 1926.1060

Ladders (& Stairways): Training, as necessary, will enable each employee to recognize hazards related to ladders and stairways and the procedures to be followed to minimize these hazards. Training will include, as applicable: 1) the nature of fall hazards in the work area; 2) the correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used; 3) the proper construction, use, placement, and care in handling of all stairways and ladders; and, 4) the maximum intended load-carrying capacities of ladders.

Scaffolds - 29 CFR 1926.454

Scaffolds: Training will enable those who perform work on scaffolds to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training will include the following areas, as applicable: 1) the nature of any electrical hazards, fall hazards and falling object hazards in the work area; 2) The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used; 3) the proper use of the scaffold, and the proper handling of materials on the scaffold; 4) the maximum intended load and the load-carrying capacities of the scaffolds used; and, 5) any other pertinent requirements that apply to our operations.

Note: Those employees who are involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold will be trained to recognize any hazards associated with the work in question. The training will include the following topics, as applicable: 1) the nature of scaffold hazards; 2) the correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question; 3) the design criteria, maximum intended load-carrying capacity and intended use of the scaffold; and, 4) any other pertinent requirements that apply to our operations.

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LNE Electric

Certificate of Training

I certify the below listed person(s) have received interactive training by a competent person in the subject matter initialed below. All appropriate standards are available to our personnel. The prime training directive is found in 29 CFR 1926.21, Title: *Safety training and education*, paragraph (b)(2): "The employer will instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury." Training, at a minimum, includes all items required by appropriate standard.

Topic covered during this training: _____

Training was presented by: _____
Print Name

_____
Signature

Training was presented on _____ at _____
Date **Location**

The below listed employees attended this meeting:

Print Name	**Signature**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

The trainer for the subject listed above is both qualified and competent in the subject matter.

_____
Matt Landers
Safety Director

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LNE Electric

Retraining Synopsis

Control of Hazardous Energy - 29 CFR 1910.147

Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

Additional retraining will also be conducted whenever a periodic inspection under paragraph (c)(6) of this section reveals, or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

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

Note: Control of Hazardous Energy Training must be certified and kept up to date. The certification must include the employee's name and dates of training.

Exposure Control for Bloodborne Pathogens or Other Infectious Materials - 19 CFR 1910.1030

Retraining will take place:

a. At least annually.
b. When changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.

Note: The person conducting the training will be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

Fall Protection - 29 CFR 1926.503

When it is determined that an affected employee who has already been trained does not have the understanding and skill required by the initial training. Circumstances where retraining is required include, but are not limited to, situations where: 1) changes in the workplace render previous training obsolete; 2) changes in the types of fall protection systems or equipment to be used render previous training obsolete; or, 3) inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

Note: The latest certification of training must be maintained and include the name of the employee trained, the date(s) of training, and the signature of the competent person who conducted the training or the signature of the employer.

Hazard Communication - 29 CFR 1910.1200

Retraining will take place whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area.

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Confined Spaces in Construction - 1926 Subpart AA

Retraining will take place:

a. Before there is a change in assigned duties;
b. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
c. Whenever there is reason to believe either that there are deviations from the permit space entry procedures required by 1926 Subpart AA or that there are inadequacies in the employee's knowledge or use of these procedures.

Note: Training must be certified and the certification must contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification will be available for inspection by employees and their authorized representatives.

Personal Protective Equipment [General] - 29 CFR 1926.28 & 29 CFR 1910.132

Retraining will take place when there is reason to believe that any affected employee who has already been trained does not have the understanding and skill required. Circumstances where retraining is required include, but are not limited to, situations where:

a. Changes in the workplace render previous training obsolete; or
b. Changes in the types of PPE to be used render previous training obsolete; or
c. Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

Personal Protective Equipment [Hearing] - 29 CFR 1926.52 & 29 CFR 1910.95

Retraining will take place annually.

Personal Protective Equipment [Respiratory] - 29 CFR 1910.134

Retraining will take place annually and when the following situations occur:

a. Changes in the workplace or the type of respirator render previous training obsolete;
b. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
c. Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Powered Industrial Trucks

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

a. If unsafe truck operations are observed.
b. After an accident or near-accident.
c. Operator has received an evaluation that reveals that the operator is not operating the truck safely
d. If the operator is to be assigned to drive a different type of truck.
e. If work area changes could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance must be conducted at least once every three years and refresher training will be provided as needed.

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Ladders - 29 CFR 1926.1060

Ladders (and Stairways): As necessary. Observation of employee use of ladders (and stairways) will be used to determine if additional training is necessary.

Scaffolds - 29 CFR 1926.454

Scaffolds: When there is reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, retraining will be given so that the requisite proficiency is regained. Retraining is required in at least the following situations: 1) where changes at the worksite present a hazard about which an employee has not been previously trained; 2) where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; and, 3) where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

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LNE Electric

Certificate of Retraining

I certify the below listed person(s) have received interactive retraining by a competent person in the subject matter initialed below. All appropriate standards are available to our personnel. The prime training directive is found in 29 CFR 1926.21, Title: *Safety training and education*, paragraph (b)(2): "The employer will instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury." Retraining, at a minimum, will include all items required by appropriate standard.

Topic covered during this training: _____

Training was presented by: _____
Print Name

_____
Signature

Training was presented on _____ at _____
Date **Location**

The below listed employees attended this meeting:

Print Name	**Signature**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

The trainer for the subject listed above is both qualified and competent in the subject matter.

_____
Matt Landers
Safety Director

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Training Cards

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LNE Electric
Aerial Lift Cards

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate an aerial lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric
Blank Cards

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in the below listed procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____

_____

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric
Flagger Cards

LNE Electric _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator	**LNE Electric** _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator
LNE Electric _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator	**LNE Electric** _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator
LNE Electric _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator	**LNE Electric** _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator
LNE Electric _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator	**LNE Electric** _____ Name Has demonstrated, on the below date, safety proficiency in flagging and traffic control procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office. _____ _____ Date Matt Landers Safety Program Administrator

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LNE Electric

Forklift Operator Cards

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a forklift and is deemed qualified and is AUTHORIZED TO OPERATE the below forklift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric
Rigger Cards

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in rigging and material handling procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in rigging and material handling procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in rigging and material handling procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

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Date Matt Landers
Safety Program Administrator

LNE Electric

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Name

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Date Matt Landers
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Name

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Date Matt Landers
Safety Program Administrator

LNE Electric

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Name

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Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

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Date Matt Landers
Safety Program Administrator

LNE Electric

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Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, safety proficiency in rigging and material handling procedures and associated equipment. Certificates of Training are on file, located in Safety Program Administrator's office.

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric

Safety Program Cards

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Name

Has demonstrated, on the below date, an understanding of our Safety Program. Certificates of training are located in Safety Program Administrator's office. The above individual has been instructed to seek clarification of any safety procedure of which he/she not sure prior to performing a work task.

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric
Scissor Lift Cards

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to operate a scissor lift and is deemed qualified and is AUTHORIZED TO OPERATE the below lift:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric

Tools-Machinery-Equipment Cards

LNE Electric

_____
Operator's Name

Has demonstrated, on the below date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

LNE Electric

_____
Operator's Name

Has demonstrated, this date, the skills & knowledge necessary to be qualified and is AUTHORIZED TO OPERATE to operate the below listed tool, machinery, or equipment:

_____ _____
Make Model

_____ _____
Date Matt Landers
Safety Program Administrator

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LNE Electric
Appendix B - Forms

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Incident Investigation Form - Accident

Involved Employee: _____ Date: _____

Age: _____ Job Title: _____ Project/Job: _____

Date & Time of Accident/Injury: _____ _____ Injury: _____

(Date) (Time) (Yes/No)

Nature of Injury or Property Damage: _____

_____

Statement of employee involved in the injury or accident (what happened) : _____

_____

_____

_____

_____

Witness 1 statement: _____

_____

_____

_____

_____

Witness 1 Name & Job Title: _____

Witness 2 statement _____

_____

_____

_____

_____

Witness 2 Name & Job Title: _____

Supervisor/competent person statement _____

_____

_____

_____

Was there an injury? ____ Was medical treatment required? ____ Possible lost time accident? ____

Signature of Supervisor/competent person: _____

Report Investigated by: _____ Date: _____

Report review by: _____ Date: _____

Findings:

Cause of incident: _____

_____

_____

Means of preventing a reoccurrence: _____

_____

_____

_____

This record will be maintained in the Safety Program Administrator's office for a period of 2 years from the date of accident/injury unless a longer retention is required by law.

If more than 10 employees at any one time in the previous calendar year, this information will be used to complete OSHA Forms 300 and 301 which are used to record and classify occupational injuries and illnesses. Recordable injuries and illnesses must be entered on OSHA Forms 300 and 301 within seven (7) days of receiving information that a recordable injury or illness has occurred.

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Incident Investigation Form - Near-Miss

Project/Job: _____ Date: _____

1.Name of Employee Involved : _____

2.Name of Employee Involved : _____

3.Name of Employee Involved : _____

Date & Time of Near-Miss Incident: _____ _____

(Date) (Time

Nature of Potential Injury or Property Damage:

_____

_____

Statement of employee #1 involved in the near-miss incident (what happened):

_____

_____

_____

_____

Statement of employee #2 involved in the near-miss incident (what happened):

_____

_____

_____

_____

Statement of employee #3 involved in the near-miss incident (what happened):

_____

_____

_____

_____

Supervisor/competent person statement:

_____

_____

_____

_____

Signature of Supervisor/competent person: _____

Report Investigated by: _____ Date: _____

Report review by: _____ Date: _____

Findings:

Root cause of near-miss incident:

_____

_____

_____

Means of preventing a reoccurrence: _____

_____

_____

_____

This record will be maintained in the Safety Program Administrator's office for a period of 1 year from the date of the near-miss incident and information gleaned from this investigation will be conveyed to employees in a safety meeting.

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Incident Analysis Investigation Form

Note: All information related to an occupational injury, fatality, and disease must be maintained for five years after the last day of the year in which the incident occurred.

Incident Investigator: _____

Date of Form Preparation: _____

Incident Information:

_____ _____ _____
(Location) (Date) (Time)

_____ _____
(Employee Name) (Employee's Supervisor Name)

Yes	No	NA	
☐	☐	☐	Have hazards appeared where no one in management realized there was a potential for their development?

Comments: _____

_____

☐	☐	☐	Where workers have faithfully followed job procedures, have accidents or near-misses occurred because of hidden hazards?

Comments: _____

_____

☐	☐	☐	Have hazards been discovered in the design of new facilities, equipment, materials, and processes after use has begun?

Comments: _____

_____

☐	☐	☐	Have accidents or near-misses occurred when two or more failures in the hazard control system occurred at the same time, surprising everyone?

Comments: _____

_____

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Yes	No	NA	
☐	☐	☐	Are the hazards discovered during accident investigations ones that should have been recognized and corrected by the regular inspection process?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are hazards ever found where employees could reasonably be expected to have previously recognized and reported them?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	When hazards are found, is there evidence that employees had complained repeatedly but to no avail?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are accidents sometimes caused at least partly by factors that might also have contributed to previous near-misses that were not investigated or accidents that were too superficially investigated?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are controls meant to protect workers actually putting them at risk or not providing enough protection?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are employees engaging in unsafe practices or creating unsafe conditions because rules and work practices are not fairly and consistently enforced?

Comments: _____

_____

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Yes	No	NA	
☐	☐	☐	Are employees in areas designated for PPE wearing it properly, with no exceptions?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are hazards that could feasibly be controlled through improved design being inadequately controlled by other means?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Is poor maintenance a frequent source of hazards?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are hazard controls in good working order?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Does equipment appear to be in good working order?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Have further injuries or worsening of injuries occurred because proper medical assistance (including trained first aid and CPR providers) was not readily available?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Have occupational illnesses possibly gone undetected because no one with occupational health specialty training reviewed employee symptoms as part of the medical program?

Comments: _____

_____

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Yes	No	NA	
☐	☐	☐	Have hazards occurred during actual or simulated emergencies due to confusion about what to do?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	On larger worksites, are emergency evacuation routes clearly marked?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are emergency telephone numbers and fire alarms in prominent, easy to find locations?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Have employees been hurt or made ill by hazards of which they were completely unaware, or whose dangers they did not understand, or from which they did not know how to protect themselves?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Have employees or rescue workers ever been endangered by employees not knowing what to do or where to go in a given emergency situation?

Comments: _____

_____

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Yes	No	NA	
☐	☐	☐	Are there hazards in the workplace that exist, at least in part, because one or more employees have not received adequate hazard control training?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Are there any instances of employees not wearing required PPE properly because they have not received proper training? Or because they simply don't want to and the requirement is not enforced?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Has a supervisor's lack of understanding of safety and health responsibilities played a part in creating hazardous activities or conditions?

Comments: _____

_____

Yes	No	NA	
☐	☐	☐	Has an incomplete or inaccurate understanding by management of its safety and health responsibilities played a part in the creation of hazardous activities or conditions?

Comments: _____

_____

Additional Items should be noted on the following page.

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Notes: _____

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Certificate of Job Site Hazard Assessment

I certify, this date, that I have performed a hazard assessment of our job sites and our methods of operations.

This hazard assessment was accomplished to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

All affected employees will be informed of the required PPE for specific work locations or specific types of work to be performed and will receive initial training or retraining, if necessary, before being allowed to perform work requiring PPE.

If conditions or procedures change, a reassessment will be made.

_____ _____

Matt Landers Date

Personal Protective Equipment Program Administrator

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Designation of Competent Person(s)

Each individual listed below, by virtue of training and/or experience, is designated a "Competent Person" as that designation relates to the area of expertise noted.

A competent person is one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Name	Area of Expertise
_____	_____
	_____
_____	_____
	_____
_____	_____
	_____
_____	_____
	_____

_____

Matt Landers

Safety Director

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Emergency Action Plan

Events may occur which dictate the evacuation of the workplace such as fire, severe inclement weather, or power failure. Additionally, events may occur which dictate the need for emergency medical responders. These sets of events fall under our Emergency Action Plan and a multitude of objectives must be met. The first & foremost objective is the safety of all our personnel. To achieve this level of safety, our plan is designed to get personnel away from danger, treat injury, and provide for a thorough & accurate accounting of all employees.

There may well be situations where certain employees, trained in first aid and/or firefighting procedures, may prevent a small emergency situation from becoming a major disaster. In these types of situations, these employees, identified in this plan, will remain on the job site to perform the function for which they are trained provided they may perform these duties, in their judgment, in a safe manner. At no time will any employee put himself/herself at risk. This will include an alarm system to signal an emergency. The alarm will have a different signal for each type of emergency. To ensure that it is working correctly when needed, it will be inspected and maintained on a regular interval.

All exits will be identified with a sign having the word "EXIT" plainly legible. Exit signs will be suitably illuminated. Doors, passageways, stairs, etc., which appear to be an exit but are not will be identified by a sign that reads, for example: "Not an Exit" Aisles & passageways will be kept clear to provide a direct, easy egress from our facility. There will also be a rendezvous point posted that all employees will meet at after if evacuated. There will be a role call to ensure all personnel evacuated safely.

A copy of this plan will be posted at the job site and, like all safety materials, is readily available for review. If we have 10 or fewer employees, the plan may be communicated orally to those employees and the we do not need to maintain a written plan. The emergency action plan will be posted at the job site with our emergency escape route diagram and emergency telephone numbers.

Training

It is important that the actual implementation of this plan be simple, direct, and carried out without confusion. Before implementing the emergency action plan, we will designate and train employees to assist in the safe and orderly emergency evacuation of other employees. Each employee must know how to alert others, how to call for assistance, the location of fire extinguishers, the escape route, the rendezvous point (being accounted for so that others do not put themselves at risk looking for a person who has already reached safety), and specific tasks that may be required of specific personnel during emergency procedures.

We will conduct a review with each employee covered by the plan at the following times:

a. Initially when the plan is developed.
b. Initially when assign to a job.
c. Whenever the employee's responsibilities or designated actions under the plan change.
d. Whenever the plan is changed.

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A copy of 29 CFR 1926.35, Employee Emergency Action Plans is readily available for review in our Safety Program.

Additionally, any employee who needs or wants more information on our Emergency Action Plan or their specific duties may contact the below person:

Program Administrator: Matt Landers

Phone Number: 9713928688

3rd Party Emergency Action Plans

When working at a client's facility, our personnel will fall under the provisions of their emergency action plan. When we rely on the emergency action plan of our client, our employees must be made aware of the rendezvous point and personnel headcount requirements within the client's plan after an evacuation.

Additionally, if we have employees who are considered to be part of critical operations and, if so, we will make prior provisions for additional employee training, tools, and equipment. When working under the plan of our client, we will follow all the same training requirements that apply to our plan plus any re-training frequency requirements of our client.

The following are standard operating procedures

Calling for Emergency Medical Response:

Should an injury occur that requires an emergency medical responder, the below listed actions will be taken in order given:

a. Call 911 or the emergency response number posted on the job site.
    1. In the absence of 911 services, the telephone numbers of physicians, hospitals, or ambulances will be conspicuously posted with our emergency phone numbers. The method of contacting emergency services must be effective at the required location and should be tested to ensure reliability.
    2. In remote areas that do not have automatic location capability for 911, we will post either the latitude and longitude of the worksite or other location identification information that effectively communicates the location of the worksite in a conspicuous location.
b. Call the Administrative Office at: 9713928688
    1. Help will immediately be sent and a person will be designated to direct the emergency responders to the injured person.
    2. If appropriate, Safety Data Sheets will be provided the emergency responders.
c. Provide any medical assistance you are trained and certified to do. Do not provide any medical assistance you are not trained to do.
d. The communication system to be used to ensure proper equipment for transportation of the injured person to a physician or hospital is calling on a cell phone posted emergency phone numbers.
e. If an employee must go to a medical facility for treatment, a member of management will accompany him/her.

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Assigned First Aid Providers:

_____

_____

_____

Note: If none, enter "None"

Reporting a Fire or another Emergency:

The phone number of the local fire department will be posted with other emergency numbers.

If a fire should occur, all personnel and the local fire department will be notified. As in all emergency situations, per the American Trauma Society, people calling the fire department should:

a. Remain calm.
b. Speak clearly and slowly.
c. Give the exact location.
d. Describe the situation.
e. Give the phone number from where you are calling.
f. Do not hang up until told to do so.

Evacuation Plan:

For Fire/Explosion/Severe Weather/Mechanical Failure, etc.

The order to evacuate is given by: _____

Note: LNE Electric must have and maintain an employee alarm system.

Note: A distinctive signal will be identified for each type of emergency notification.

Example: Fire Bell; Three (3) Blasts of an Air Horn; Public Announcement

To alert others: _____

Example: Activate alarm; notify main office,

Location of fire extinguishers, nearest listed first:

_____	_____
Type	**Location**
_____	_____
Type	**Location**
_____	_____
Type	**Location**

Rendezvous Point:

_____

Example**: Parking lot; by dumpster**

Specific Hazards to be aware of:

_____

(Example: List nearby hazardous chemicals. If none, enter "none")

Evacuation Route:

Map or schematic drawing of route will be posted

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Roster of Personnel with Specific Duties During an Evacuation:

The following are personnel who will stay behind and perform the assigned duties listed before evacuation:

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

_____ _____

Name Title

_____

Duties

Note: Examples of specific duties: Deenergizing certain equipment or machinery; accounting for personnel at rendezvous point; manning fire extinguishers; directing emergency responders; on alert for First Aid delivery; rescue team member; etc. If none, enter: "None".

Emergency Rescue/Medical Duties:

Our employees are not to perform emergency rescue or emergency medical duties. These duties will be performed by personnel with expertise in these areas.

Note: When working at another contractor's facility, our company would fall under the provisions of their emergency action plan and a copy of their plan would be posted at our job site.

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LNE Electric

Enforcement Documentation

Date: _____

Employee Name: _____

Level of Violation (Check One): ☐ Minor ☐ Major ☐ Willful
☐ Repeat

Supervisor: _____

Description of violation: _____

_____

_____

_____

Possible Adverse Consequences: _____

_____

_____

_____

Corrective Action: _____

_____

_____

_____

Employee Acknowledgment:

_____ _____
Signature Date

Employee statement/rebuttal (optional): _____

_____

_____

_____

Witnesses if appropriate & available. An effort should be made to obtain witnesses for willful safety violations.

Print Name	Signature
_____	_____
_____	_____
_____	_____

Note: With the exception of willful violations, this form will be destroyed after a 12-month period.

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Fire Prevention Plan

Reference the Fire Protection and Fire Prevention portions of our Safety Program. These referenced sections deal with procedures to prevent a fire, and, in the event of a fire, the various limitations of fire extinguishers. Further, reference our Emergency Action Plan, which deals with actions to take in the event of a fire and/or evacuation. This Fire Prevention Plan deals not with handling a fire emergency, but rather preventing a fire in the first place.

Housekeeping

One of the first rules of fire prevention is good housekeeping. Good housekeeping can prevent a fire from starting (improper storage of combustibles, for example) and should there be a fire, good housekeeping can: 1) help prevent the spread of the fire, and 2) make fighting the fire an easier task. Some specific housekeeping rules that impact directly on fire prevention are:

a. Combustible liquids must be stored and covered in approved containers.
b. All chemical spills including, of course, combustible liquids, must be cleaned up immediately.

   Note: Care must be taken when cleaning up chemical spills. Information on appropriate personal protective equipment; proper disposal; proper cleanup procedures; required ventilation, etc. is found on the products Safety Data Sheet.

c. Cleanup materials and damaged containers must be properly disposed.
d. Combustible liquids and trash must be segregated and stored away from ignition sources.
e. Aisle ways will be kept free of clutter and trash.
f. Fire exits will never be blocked.

Fire Fighting Equipment

One often thinks of firefighting equipment as it relates to the workplace as fire extinguishers. This is true, yet there are other, often more important, pieces of equipment such as sprinkler systems and outside hydrants. While portable fire extinguishers may prevent a small fire from becoming a major disaster, they are not designed to handle large fires. Below listed are items included in our Fire Prevention Plan:

a. Approved fire extinguishers will be checked on at least an annual basis and they shall always be charged and ready for use.
b. Portable fire extinguishers will be mounted, located, and identified for easy accessibility.
c. Fire hydrants will be kept clear and, during the winter months, not be buried by snow.

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Below are the four classification of fire extinguishers and a brief description:

Class	Distribution	Notes
A “A” on a green triangle	75 feet or less travel distance between the employee and the extinguisher	For use on wood, paper, trash, etc.
B “B” on a red square	50 feet or less travel distance between hazard area and the extinguisher	For use on flammable liquid, gas, etc.
C “C” on a blue circle	Based on the appropriate pattern for the existing Class A or Class B hazards	For use on electrical fires
D “D” on a yellow star	75 feet or less travel distance between the combustible metal working area and the extinguisher or other containers or Class D extinguishing agent	For use on combustible metals

Elimination of Major Workplace Fire Hazards

1. Smoking is allowed only in designated areas and smoking materials will be totally extinguished and placed in the appropriate receptacles.
2. All chemical and chemical products will be handled and stored in accordance with the procedures noted on their individual SDS.
3. Debris will not be allowed to accumulate at the workplace.
4. Special precautions will be taken when working with an open flame (such as welding) and those areas will be made fire safe by removing or protecting combustibles from ignition.
5. Equipment installed on heat producing equipment will be regularly and properly maintained to prevent accidental ignition of combustible materials in accordance with manufactures instructions. These instructions are incorporated, by reference, in this Plan

Training

Training in fire protection will be accomplished upon initial assignment and annually thereafter as part of our overall safety program. This training shall include items that deal with employee protection in the event of an emergency. All employees will be apprised of the fire hazards of the materials and processes to which they are exposed.

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LNE Electric

Job Task Safety Analysis

Activity being analyzed	**Analysis performed by**
Trade/Craft to perform activity	**Date of Analysis** **Page** 1 of

Instructions: **For each activity being analyzed, fill our each of the six (6) sections above and use "N/A" if not appropriate. If more than 1 page is required, use a second sheet and ensure that they are attached together and numbered, i.e., for 3 total pages: 1 of 3; 2 of 3; 3 of 3**

Step #	Description of Task	Potential Hazard/Accidents	Recommended Safe Job Procedure
1			
2			
3			
4			

Step #	Equipment to be Used	Inspection Requirements	Training Requirements
1			
2			
3			
4			

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Step #	Description of Task	Potential Hazard/Accidents	Recommended Safe Job Procedure
5			
6			
7			
8			

Step #	Equipment to be Used	Inspection Requirements	Training Requirements
5			
6			
7			
8			

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Step #	Description of Task	Potential Hazard/Accidents	Recommended Safe Job Procedure
9			
10			
11			
12			

Step #	Equipment to be Used	Inspection Requirements	Training Requirements
9			
10			
11			
12			

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Step #	Description of Task	Potential Hazard/Accidents	Recommended Safe Job Procedure
13			
14			
15			
16			

Step #	Equipment to be Used	Inspection Requirements	Training Requirements
13			
14			
15			
16			

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Safety Meeting Attendance Documentation

Topic covered during this Safety Meeting: _____

This Safety Meeting was presented by:

_____ _____
(Print Name) (Signature)

_____ at _____
(Date) (Location)

The below listed employees attended this meeting:

Print Name	**Signature**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Additional Documentation

Employee comments or concerns:

_____

_____

_____

Other safety issues addressed at this meeting:

_____

_____

_____

Items requiring follow-up:

_____

_____

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LNE Electric
Scope of Work

Project Name: _____

Project Address: _____

_____

Project Owner: _____

Project Scope of Work

_____

_____

_____

_____

_____

_____

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Site Specific Safety Requirements

Project Name: _____

Project Address: _____

_____

Project Owner: _____

Safety Requirements

_____

_____

_____

_____

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Stop Work Report

If the Stop Work Order is issued by a 3rd party, retain a copy of their report and attach it to this completed form.

Project Information:

Management: _____ _____
Name Title

Name/Number: _____

Address: _____

Stop Work Order Start Date and Time

Date: _____ Time: _____

Stop Work Order Initiated by:

- ❑ Federal Agency: _____
- ❑ State Agency: _____
- ❑ Local Agency: _____
- ❑ Project Owner: _____
- ❑ Construction Manager: _____
- ❑ General Contractor: _____
- ❑ Sub-Contractor: _____
- ❑ Other 3rd Party: _____
- ❑ LNE Electric Management
- ❑ LNE Electric Employee

Contact Information for Person Stopping Work:

Name: _____

Title: _____

Phone Number: _____

Email (optional): _____

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Work Being Stopped:

- ❑ Entire project
- ❑ Specific task/area: _____

Reason for Stop Work Order:

_____
_____
_____
_____
_____
_____
_____
_____

Estimated Return to Work Start Date and Time

Date: _____ Time: _____

LNE Electric Employees Affected by Stop Work Order:

Name:	Position/Work Type:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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Corrective Action Required:

_____

_____

_____

_____

_____

_____

_____

_____

Corrective Action Verified by:

Name: _____

Title: _____

Signature: _____

All Clear to Return to Work Given by:

Name: _____

Title: _____

Signature: _____

Stop Work Order End Date/Time

Date: _____ Time: _____

Stop Work Report Reviewed by:

Name: _____

Title: _____

Signature: _____

Date: _____

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List of Hazardous Chemicals

The Safety Data Sheets for the below listed Hazardous Chemicals are available for review if needed. The Safety Data Sheets are arranged in the order listed below:

Chemicals

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LNE Electric

Request for Safety Data Sheets

TO:

_____
(Date)

_____
(Supplier)

_____
(PO Box/Street Address)

_____
(City, State, ZIP)

To whom it may concern:

On _____, we received a shipment of _____,
(Date) (Product Name)
reference invoice: _____.
(Invoice Number)

The above product was received without an accompanying Safety Data Sheet (SDS). Per 29 CFR 1910.1200, we are unable to use this product without its SDS.

Please furnish the appropriate SDS as soon as possible to:

LNE Electric
Matt Landers
9260 Sw 146th Terr #8
Beaverton, OR, 97007
9713928688

Thank you,

_____
Matt Landers
Safety Director

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PPE Distribution Acknowledgement – Multiple Employee

Employee Name:_____Week of: ___/___/_____

Employee Signature:_____

Type of PPE

☐ Hard Hat ☐ Ear Plugs ☐ Gloves ☐ Safety Glasses

☐ Face Shield ☐ Reflective Vest ☐ Fall Protection ☐ Respirator

Reason for needing PPE

☐ First Time Receiving ☐ Broken or Damaged ☐ Lost

All broken or damaged PPE will be replaced by our company at no charge to the employee. Lost PPE will be deducted from your pay.

Employee Name:_____Week of: ___/___/_____

Employee Signature:_____

Type of PPE

☐ Hard Hat ☐ Ear Plugs ☐ Gloves ☐ Safety Glasses

☐ Face Shield ☐ Reflective Vest ☐ Fall Protection ☐ Respirator

Reason for needing PPE

☐ First Time Receiving ☐ Broken or Damaged ☐ Lost

All broken or damaged PPE will be replaced by our company at no charge to the employee. Lost PPE will be deducted from your pay.

Employee Name:_____Week of: ___/___/_____

Employee Signature:_____

Type of PPE

☐ Hard Hat ☐ Ear Plugs ☐ Gloves ☐ Safety Glasses

☐ Face Shield ☐ Reflective Vest ☐ Fall Protection ☐ Respirator

Reason for needing PPE

☐ First Time Receiving ☐ Broken or Damaged ☐ Lost

All broken or damaged PPE will be replaced by our company at no charge to the employee. Lost PPE will be deducted from your pay.

Employee Name:_____Week of: ___/___/_____

Employee Signature:_____

Type of PPE

☐ Hard Hat ☐ Ear Plugs ☐ Gloves ☐ Safety Glasses

☐ Face Shield ☐ Reflective Vest ☐ Fall Protection ☐ Respirator

Reason for needing PPE

☐ First Time Receiving ☐ Broken or Damaged ☐ Lost

All broken or damaged PPE will be replaced by our company at no charge to the employee. Lost PPE will be deducted from your pay.

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PPE Distribution Acknowledgement – Single Employee

Employee Name:_____Week of: ___/___/_____

Employee Signature:_____

Type of PPE

☐ Hard Hat ☐ Ear Plugs ☐ Gloves ☐ Safety Glasses

☐ Face Shield ☐ Reflective Vest ☐ Fall Protection ☐ Respirator

Reason for needing PPE

☐ First Time Receiving ☐ Broken or Damaged ☐ Lost

All broken or damaged PPE will be replaced by our company at no charge to the employee. Lost PPE will be deducted from your pay.

Additional Items of Concern:

_____

_____

_____

_____

_____

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Regulatory Agency Inspections

Below is our protocol should a representative of a regulatory agency arrive at the workplace.

If a regulatory agency Compliance Officer arrives on site, the site supervisor will check-off the items as they apply. The regulatory agency Compliance Officer is welcome to see this checklist, but **may not have it or make a copy of it**.

If there is not enough room to complete an item, below, continue in the notes section or add additional pages.

_____ _____ _____
Location Date Time

_____ _____
Supervisor Name Compliance Officer's Name

_____ _____
Agency Area Office Agency Area Office Phone Number

Yes No NA

During the 10 minutes before the Compliance Officer arrived, I was: _____
(Activity/Location: Example; Paperwork in job trailer)

_____

☐ ☐ ☐ The Compliance Officer displayed his credentials.

☐ ☐ ☐ The Compliance Officer revealed specifically why the inspection was being conducted.

_____
(Planned, Referral, Complaint, etc.)

_____

☐ ☐ ☐ The Compliance Officer revealed the specific focus of the inspection. _____

_____

☐ ☐ ☐ Prior to inspecting the site, did the Compliance Officer put on appropriate PPE? _____
(If "No", was it suggested? Was it offered?)

_____

☐ ☐ ☐ I remained with the Compliance Officer throughout the inspection including the inspection of subcontractors.

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Yes No NA

The Compliance Officer took:

☐ ☐ ☐ 1. Photographs of _____
_____

☐ ☐ ☐ 2. Video Recordings of _____
_____

☐ ☐ ☐ 3. Audio Recordings of _____
_____

I also took:

☐ ☐ ☐ 1. Photographs of _____
_____

☐ ☐ ☐ 2. Video Recordings of _____
_____

☐ ☐ ☐ 3. Audio Recordings of _____
_____

☐ ☐ ☐ I answered all questions truthfully to the best of my knowledge.

☐ ☐ ☐ I did not volunteer information that was not asked for with the exception that I did ensure that the Compliance Officer was **fully aware** that our company **has**:

a. a written safety program that addresses methods to perform work in compliance with OSHA standards.
b. adequately communicated our work rules to our employees.
c. frequent and regular documented inspections and any safety violations are immediately corrected and documented.
d. an enforcement policy which is also documented.
e. a policy statement demonstrating senior management's commitment to safety.
f. has a 2-tier inspection process where upper management randomly inspects supervisors and all supervisors are held responsible for their actions.

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Yes No NA

☐ ☐ ☐ Did the Compliance Officer ask to review the above items (a through f) or have them sent to him? _____
(Documents seen)

_____

_____
(Documents to be sent)

_____

☐ ☐ ☐ Did the Compliance Officer interview any of our employees?

_____
(Names)

_____

☐ ☐ ☐ Did the Compliance Officer interview any of our subcontractor's employees? _____
(Names)

_____

☐ ☐ ☐ Did the Compliance Officer request to see any specific documents other than those listed above? _____
(List documents)

_____

Alleged violations:

Were Corrected

Yes No NA

☐ ☐ ☐ 1. _____
(Describe in detail)

_____

_____

☐ ☐ ☐ 2. _____
(Describe in detail)

_____

_____

☐ ☐ ☐ 3. _____
(Describe in detail)

_____

_____

☐ ☐ ☐ 4. _____
(Describe in detail)

_____

_____

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Yes No NA

If, in fact, the above alleged violations occurred, I was unable to prevent them from happening because:

_____
(Reason)

_____

_____

_____

_____

☐ ☐ ☐ If the Compliance Officer proposed an alleged citation, did he/she record my prior knowledge or lack of prior knowledge of the hazardous condition? _____

_____

☐ ☐ ☐ If the Compliance Officer proposed an alleged citation involving measurements, were the measurements made with a measuring devise such as a ruler? _____

_____

☐ ☐ ☐ If, in fact, the above alleged violations occurred, I did write up the employee/subcontractor as part of our enforcement documentation program. If "Yes", attach copies.

☐ ☐ ☐ Was there an exit interview?

☐ ☐ ☐ Were subcontractors represented at the exit interview? The Compliance Officer left at: _____
(Time)

☐ ☐ ☐ Did the Compliance Officer conduct him/herself in a professional manner? _____ _____

☐ ☐ ☐ Did our subcontractors handle themselves in a professional manner? _____

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Yes	No	NA	
☐	☐	☐	Were subcontractors or other contractors on this job? If yes, please list:

_____
_____
_____
_____

☐	☐	☐	I have attached sketches to help illustrate specific situations

Notes: _____
_____
_____
_____
_____
_____
_____
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Immediately after the Compliance Officer has left, contact the office.

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