

# **SHORT-TERM** **OPERATIONS PLAN**

## **Volume XI**

**Operations & Maintenance Manual**  
**2016**

# Eisenhower/Johnson Memorial Tunnel FFSS Short-Term Operations Plan (STOP)

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Project Number: C 0703-360  
Sub-Account: 17810

Rev: 3  
February 24, 2016

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project
Rev. 3	SHORT-TERM OPERATIONS PLAN

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## 1.0 PLAN OVERVIEW

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### 1.1 Purpose

The Short Term Operations Plan (STOP) provides information related to the approach that will be taken to performing maintenance on the Fixed Fire Suppression System (FFSS) during the short term operations period. The FFSS is comprised of four distinct sub-systems that include: the suppression system, the fire alarm system, the mechanical system and the electrical system. Each of those systems will be maintained by the contractor who installed that system. The STOP is organized such that the approach to maintenance is described by each system or contractor. The STOP includes the following information, prepared by each contractor for each of the sub-systems:

- Description of the approach to maintenance;
- Maintenance scope and schedule for all equipment;
- Strategy for sourcing spare parts, special tools and consumable;
- Warrantees on equipment
- Staff organization chart and qualifications, training, certification, work locations and assignments,
- Strategy for responding to fault conditions;
- Safety manuals,
- Approach to performing annual system testing;
- Annual Maintenance Plan (AMP);
- Maintenance Schedule.

The STOP does not provide a description of the operation of the system. Operation instructions are provided in the Operations and Maintenance Manuals and the Training Plans.

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## 1.2 Maintenance, Service and Emergency Contacts

During the short term operations period, there may be a need to call for warranty or emergency service. **All Maintenance, Service and Emergency Issues should be directed to Western States Fire Protection’s call center which will receive calls at all times.** The call center will contact the appropriate representative at Barnard. Please see the detailed notification procedures described in the letter dated February 20, 2015. The service numbers for each subcontractor are listed below for reference.

System	Contractor	Emergency/Main Service Number
Primary contact for all maintenance, service and emergency work: Western States Fire Protection Call Center	Western States Fire Protection	303-792-0022
Fire Suppression	Western States Fire Protection	303-792-0022
Fire Alarm /CCTV	Systems Group	303-298-7900
Mechanical	Braconier	303-777-3037
Electrical	Sturgeon Electric	303-286-8000

When responding to a failure condition or to provide routine service, The Barnard EJMT Team will notify Tom Hurst (303.519.0384) or, if Tom is unavailable, Bob Hammond (303.588.9300) of the following activities:

- Arrival on Site
- Description of Work Activities, Location of Work, Estimated Time on Site
- Departure from Site and Summary of Work Completed

An email will be provided to Tom Hurst (thomas.hurst@state.co.us) describing the work that was completed, and if responding to a failure condition if the system was repaired. If the system was not repaired, an estimated time for completion of the work will be provided.

In the event that neither Tom nor Bob are available, the Barnard EJMT Team will contact the Control Room (303.512.5730) and ask to speak with a supervisor, providing the information outlined above.

All calls from CDOT to the Barnard EJMT Team will be logged, see Exhibit C for a sample notification log, by Barnard Construction. The log will be available for review by request.

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## BARNARD EJMT TEAM

February 20, 2015

Christi Hurelle  
ICO: CDOT West Program  
Colorado Department of Transportation  
425A Corporate Circle  
Golden, CO 80204

christi.hurelle@parsons.com  
Phone: (303) 503-7296

RE: EJMT Emergency Response & Monitoring

Dear Mrs. Hurelle,

In accordance with Contract Book 2, Section 19.17, Barnard Construction will monitor and respond to failures at the EJMT Fixed Fire Suppression System Project as described below.

In the event of a routine failure, priority failure, or emergency failure as defined by Book 2, Section 19.17, Colorado Department of Transportation shall notify Western States Fire Protection's Call Center at (303) 792-0022. The Call Center will maintain 24-hour, 7 days-per-week service to receive and transmit notifications from CDOT. While WSFP's Call Center will be CDOT's first means of communication, Barnard will remain the responsible party in event of all response conditions.

Once the Call Center is notified, Barnard will be alerted of the condition via telephone and email from WSFP. Barnard will then route all information to the responsible subcontractor according to the chart below. Barnard will maintain a log of all notifications from CDOT. The log will also include documentation of actions that are taken to resolve response conditions. Barnard shall respond to failures and complete repairs to restore system function so as to adhere to response times listed in Book 2, Section 19.17.

System	Responsible Subcontractor
Fire Suppression	Western States Fire Protection
Fire Alarm / CCTV	Systems Group
Mechanical	Braconier Plumbing & Heating
Electrical	Sturgeon Electric

Sincerely,



Digitally signed by Joe Silvestri  
DN: cn=Joe Silvestri, c=US,  
o=Barnard Construction Company  
Inc., email=joe.silvestri@barnard-  
inc.com  
Date: 2016.02.22 07:40:24 -0700

Joe Silvestri  
Barnard Construction Company, Inc.

Tom Coakley  
Tom Coakley  
Western States Fire Protection  
Western States Fire Protection

Digitally signed by Tom Coakley  
DN: c=US, email=Tom.Coakley@wsfp.us,  
ou=west-denver, cn=Tom Coakley  
Date: 2015.02.22 08:34:48-0700



Eisenhower-Johnson Memorial Tunnel

Fixed Fire Suppression System

Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

General Description of Contractor's Approach to Maintenance:

Systems Group (SG) employs factory trained and certified individuals for each and every system we sell and maintain. Our policy is to have a minimum of two certified technicians on each system; with extensive cross-training of our other technicians on all systems and products so they are knowledgeable in basic troubleshooting and servicing of all the systems we sell and maintain. Our goal is to have adequately trained back-up technicians available for support and back-up of our on-call and project technicians.

SG employs NICET engineers to design our systems and NICET technicians to work on our systems. SG employs highly trained sales personnel to estimate the projects correctly and highly experienced personnel to manage the projects during the installation and commissioning phase. Our company has several hundred years of experience in the life safety field across the breadth of our company. We can all put on tools and address a problem when required.

Maintenance Scope And Schedule For All Equipment Installed As Part Of the Project:

The Fire Alarm, FOLHD, and FA CCTV Systems installed at the EJMT are for the most part maintenance-free under normal operations. The systems are self-supervised and report off normal conditions to the tunnel operations staff via the workstations.

There are some routine maintenance activities that need to be undertaken on each system, which are listed in the Annual Maintenance Plan (AMP).

Strategy For Sourcing Spare Parts, Special Tools, and Consumables:

SG makes every attempt to maintain stock levels on all equipment that we sell and maintain. Our normal stocking level on equipment is approximately \$250,000 of equipment in our warehouse; encompassing the various fire alarm, FOLHD, security, and CCTV Systems that we represent. We make every attempt to keep stocking level quantities of all equipment on our shelves to meet all of our customer's needs. That being said, we are a life safety company that maintains multiple clients and multiple sites. As such, emergency repair stock is utilized on an as needed basis, so not every piece of equipment is guaranteed to be available at all times. We do re-order emergency stock on an expedited basis when specific equipment is not on our shelves.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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If we do run into a situation where we do not have a specific piece of equipment in stock, our equipment manufacturers typically can ship a piece of equipment on an overnight basis, as long as the equipment order is placed in time to allow for overnight shipping to occur.

In the case of the FOLHD System, we have purchased a system demo that is the exact model of detector that is installed in the EJMT project. SG did this to have a back-up FOLHD detector since this piece of equipment is custom made and calibrated to the specific project it is installed on; which requires an approximate 2 week replacement timeframe for a new unit to be manufactured, calibrated and shipped from Germany. Our FOLHD demo unit is certainly overkill for a normal demo, but we felt it was important to have a readily available back-up that can be temporarily installed, if required.

Our business and our manufacturer's business that we represent is life safety, which requires a higher level of commitment for our clients.

We utilized local suppliers for the FOLHD brackets and end caps (Arvada, CO), and the Tunnel Zone Signage (Broomfield, CO) for items that are not purchased through our represented manufacturers. SG has ongoing relationships with these suppliers, which allows faster response times if these items are needed in the future.

### Warranty:

The project requires 5 years of warranty for all equipment supplied for the project. We have purchased extended warranties on equipment where available, and have accounted for additional warranty costs for this 5 year period in our proposal cost for the project.



Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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Staff Organizational Chart And Staffing Plan:

John Ballman – Operations Manager (Denver, CO)

NICET 4 and LIOS (FOLHD) certified

Arden Everhart, Jr. – Project Manager (Denver, CO)

EST3 and LIOS (FOLHD) certified

Michael Howell – Service Manager (Denver, CO)

NICET 3, EST3, Fireworks, and LIOS (FOLHD) certified

Rick Bragdon – Security Sales and Service (Denver, CO)

EST3 and Avigilon certified

Trey Tiner – Service Technician (Denver, CO)

EST3, Fireworks, and LIOS (FOLHD) certified

Tyler Dunlap – Service Technician (Denver, CO)

EST3, Fireworks, and LIOS (FOLHD) certified

\*\*Certifications are included at the end of this document

Subcontractor List:

Systems Group (SG) performs all maintenance, testing, and service activities for all systems supplied by our company.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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### Strategy For Responding To Fault Conditions

Systems Group (SG) provides emergency response on a 24/7/365 basis as part of our normal business practice. Our main office number 303.298.7900, is answered during off business hours and on-call technicians are given the client contact information to respond back to the client as soon as the call has been received.

The on-call technician will then assist the client in the determination of what type of “Failure” the specific condition constitutes; to determine how quickly the technician needs to respond to the site.

Our on-call technicians have truck stock available on a normal basis, and have 24/7/365 access to the office to secure any material that may be required to facilitate the repairs, if they do not have the specific items in their truck stock.

SG has purchased a fusion splicing machine specifically for the FOLHD fiber system, to make any emergency repairs that may occur on the tunnel fiber (i.e. an over height truck ripping down the FOLHD brackets and fiber) or other non-normal operation damage event to the FOLHD fiber that may occur. SG considers this FOLHD fiber damage an “emergency failure” even though this is not listed in the emergency failure items in the RFP. Our goal would be to temporarily replace the FOLHD fiber section to get the tunnel back in operation as soon as possible, with a scheduled tunnel shutdown at a later date to make permanent repairs to the FOLHD fiber, add in the splice boxes, and repair or replace the hanger, as needed.

SG sees no issues in meeting the required response times of:

8 hours or less for an “Emergency Failure”

24 hours or less for a “Priority Failure”

72 hours or less for a “Routine Failure”

assuming weather does not permit travel to the EMJT site.

As stated various times above, Systems Group is in the life safety business, so this is our “normal” business practice for abnormal conditions on systems we service and maintain.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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### Annual Testing Plan:

This project is unique in nature, which requires an alternate strategy to facilitate testing of the fixed fire suppression system during the five (5) year Warranty period. We have limited water supply available, which limits the quantity of pre-action systems that can be tested in a given time period. We have a large number of pre-actions systems to test. Testing of the pre-action systems would impact the traveling public due to the water deluge release necessitated for the test. Additionally, there is the potential for inclement weather to limit our testing..

As such, the strategy for testing the project is as follows:

### Year 1

#### Tunnel Pre-Action Systems

20% of the pre-action systems (or roughly 37 systems) will be tested in full. This testing will encompass two types of tests – full integrated systems and partial integrated systems.

The following is a description of the test, which will incorporate a full integrated systems test of all components of the fixed fire suppression system. Full integrated systems test will include two (2) deluge zones in the North Tunnel and two (2) deluge zones in the South Tunnel, for a total of four (4) total deluge zones.

- Heat the FOLHD fiber, allowing the system to fully operate.
- Allow a small amount of water to be introduced to the roadway to verify the operation of all components of the water delivery system (Fire Pump fully operational, Boiler Circulation Pumps fully operational, and drainage valve systems fully operational).
- Verify proper annunciation to the Fireworks display system.
- Verify proper operation of the associated deluge system components (waterflow, valve tamper, and releasing valve).
- Verify water is discharged to the roadway in associated deluge zone.
- Verify Fire Pump starts.
- Verify Boiler Circulation Pumps shut down.
- Verify drainage valves are positioned correctly, based on the deluge valve being discharged.
- Verify proper deluge system override functions from the Fireworks display system.
- Verify pre-positioning of the FA CCTV cameras to the corresponding tunnel zone being tested.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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- Verify proper manual control functions (PTZ) of the FA CCTV cameras from the operator workstation.
- Verify proper restoral of deluge system components to their non-alarm state.
- Verify proper operation of the fire pump and boiler circulation pump manual restoral switch and components to their non-alarm state.
- Verify proper operation of the drainage system manual restoral switch and components to their non-alarm state.

The following is a description of the test, which will incorporate a partial integrated systems test of all components of the fixed fire suppression system. Partial integrated systems test will include sixteen (16) deluge zones in the North Tunnel and seventeen (17) deluge zones in the South Tunnel, for a total of thirty-three (33) total deluge zones.

- Heat the FOLHD fiber, allowing the system to fully operate.
- Allow a small amount of water to be introduced to the roadway to verify the operation of all components of the water delivery system (Fire Pump will be disabled, Boiler Circulation Pumps will be disabled, and drainage valve systems will be disabled).
- Verify proper annunciation to the Fireworks display system.
- Verify proper operation of the associated deluge system components (waterflow, valve tamper, and releasing valve).
- Verify water is discharged to the roadway in associated deluge zone.
- Verify proper deluge system override functions from the Fireworks display system.
- Verify pre-positioning of the FA CCTV cameras to the corresponding tunnel zone being tested.
- Verify proper manual control functions (PTZ) of the FA CCTV cameras from the operator workstation.
- Verify proper restoral of deluge system components to their non-alarm state.

We propose this testing will occur as follows during the 2<sup>nd</sup> Quarter (May) of each year of the 5 Year AMP/STOP Plan:

North Tunnel fully integrated systems deluge testing two (2) zones, plus the North Tunnel partial integrated systems deluge testing sixteen (16) zones will be scheduled for two (2) consecutive nights (Monday and Tuesday) from 10PM thru 6AM, with alternate days to be Wednesday and Thursday) of the same week, to accommodate any unforeseen events. This testing will involve a full bore closure for the two (2) requested nights.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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If the alternate evenings are NOT required, the remaining North Tunnel deluge zones not scheduled for water discharge will be tested by simulating the FOLHD alarm to the deluge valves to verify that the valves release upon alarm signal, the FA CCTV cameras position correctly, and that the Fireworks System has manual ON/OFF control of the deluge valves. The same identical testing that was conducted during the functional pre-testing of the fixed fire suppression system components prior to CDOT final tests. This testing would be done during normal daytime hours

If the alternate evenings are required for the fully integrated testing, the remainder of the North Tunnel deluge zones not scheduled for water release would be rescheduled for another day during the 2<sup>nd</sup> Quarter (May).

South Tunnel fully integrated systems deluge testing two (2) zones, plus the South Tunnel partial integrated systems deluge testing seventeen (17) zones will be scheduled for two (2) consecutive nights (Monday and Tuesday) from 10PM thru 6AM, with alternate days to be Wednesday and Thursday) of the following week, to accommodate any unforeseen events. This testing will involve a full bore closure for the two (2) requested nights.

If the alternate evenings are NOT required, the remaining South Tunnel deluge zones not scheduled for water discharge will be tested by simulating the FOLHD alarm to the deluge valves to verify that the valves release upon alarm signal, the FA CCTV cameras position correctly, and that the Fireworks System has manual ON/OFF control of the deluge valves. The same identical testing that was conducted during the functional pre-testing of the fixed fire suppression system components prior to CDOT final tests. This testing would be done during normal daytime hours

If the alternate evenings are required for the fully integrated testing, the remainder of the South Tunnel deluge zones not scheduled for water release would be rescheduled for another day during the 2<sup>nd</sup> Quarter (May).

100% of the non-tunnel systems to be tested as follows:

### Fire Pump Verification

SG will witness one of the monthly Fire Pump Tests that are required for Fire Pumps.

Fire Pump power “trouble” simulations (power loss, phase reversal, pump running on alternate power) to be initiated.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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An alarm simulation of one of the tunnel deluge zones will be initiated (with the associated deluge valve disabled) to start the Fire Pump.

Verification of proper reporting of Fire Pump conditions to the Fireworks display system.

Verification of proper activation of the Fire Pump Start from the FA System.

Testing to verified during 2<sup>nd</sup> Quarter (May) deluge zone testing.

### Boiler Status Verification

Boiler trouble status reports to the fire alarm system.

Testing to verified during 2<sup>nd</sup> Quarter (May) deluge zone testing.

### Drainage Valve Verification

Visual confirmation that the Drainage Valve operation for the North Tunnel is correct.

Visual confirmation that the Drainage Valve operation for the South Tunnel is correct.

Testing to verified during 2<sup>nd</sup> Quarter (May) deluge zone testing.

### Non-Tunnel Water Delivery System Equipment

Activate each valve tamper switch, to insure proper reporting to the Fireworks display system, within two (2) turns of the valve.

Activate each water pressure switch to verify proper reporting to the Fireworks display system within 45 seconds of activation.

Testing to verified during 2<sup>nd</sup> Quarter (May) deluge zone testing.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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### Emergency Generator

SG will witness one of the monthly Emergency Generator Tests. .

Emergency Generator “trouble” simulation to be initiated.

Verification of proper reporting of Emergency Generator conditions to the Fireworks display system.

Testing to verified during 2<sup>nd</sup> Quarter (May) deluge zone testing.

### Miscellaneous FA/FOLHD/FA CCTV Equipment

Activate the smoke detector in the West Mezzanine Control Room to verify proper reporting to the Fireworks display system.

Activate the heat detector in the West Fire Pump Room to verify proper reporting to the Fireworks display system.

Activate the carbon monoxide element of the heat detector in the West Fire Pump Room to verify proper reporting to the Fireworks display system.

Disconnect each leg of the FOLHD fiber to simulate a “fiber break” condition to verify proper reporting to the Fireworks display system.

Turn off power to each FOLHD detector to simulate a “detector trouble” condition to verify proper reporting to the Fireworks display system.

Simulate a battery fault condition in 25% of the FPC and RCP Panels to verify proper reporting to the Fireworks display system.

Simulate a power loss condition in 25% of the FPC and RCP Panels to verify proper reporting to the Fireworks display system.

Disconnect a leg on the FA System fiber communications loop to simulate a “communications trouble” to verify proper reporting to the Fireworks display system.



Disconnect a leg on the FA CCTV fiber communications loop to simulate a “communications trouble” to verify proper reporting to the FA CCTV workstations.

#### Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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Simulate a “trouble condition” on the UPS System batteries for the FA fireworks workstations, FA CCTV workstations, and FA CCTV Equipment racks to verify proper reporting of the UPS trouble condition to the associated workstation.

Simulate several earth ground conditions on various FA circuits to verify ground fault condition is transmitted to the Fireworks display system. No set number of simulations – just a random test of a few circuits per year.

#### Year 2

Same as Year 1 testing, except a different 20% of the tunnel pre-actions systems, and FPC and RCP battery and power loss simulations will be conducted.

#### Year 3

Same as Year 2 testing, except a different 20% of the tunnel pre-actions systems, and FPC and RCP battery and power loss simulations will be conducted.

#### Year 4

Same as Year 3 testing, except a different 20% of the tunnel pre-actions systems, and FPC and RCP battery and power loss simulations will be conducted.

#### Year 5

Same as Year 4 testing, except a different 20% of the tunnel pre-actions systems, and FPC and RCP battery and power loss simulations will be conducted.



## Short Term Operations Plan – FA, FOLHD & FA CCTV Systems

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### Safety Manual

Systems Group has provided its standard safety manual used in our normal business operation, as an attachment to this STOP Plan.

In addition to our standard safety manual, there are several hazards that affect our normal testing and servicing activities for the project.

1. Any roadway work will entail a lane closure for work associated with FA CCTV camera maintenance. Additional high visibility clothing and hearing protection is required for our employees. Radio communications with CDOT is mandatory.
2. Any plenum panel servicing work will require LOTO of the associated plenum fans, along with air monitoring detector specifically for CO levels and low O2 levels. Two forms of illumination are required for our employees. In addition, radio communications with CDOT is mandatory.
3. Due to the extreme distances involved on the project, many of our testing and maintenance activities will be done with two individuals on site, to facilitate faster response times in performance of our tasks.

### Annual Maintenance Plan (AMP):

Systems Group has furnished our proposed AMP Plan as a separate attachment to this STOP Plan Document.

### Attachments:

- Systems Group Resumes & Certifications
- Systems Group Safety Manual
- Systems Group Annual Maintenance (AMP) Plan

End of STOP Plan.

**APPENDIX A**  
**AMP PLAN**  
**SECTION**



Eisenhower-Johnson Memorial Tunnel

Fixed Fire Suppression System

Annual Maintenance Plan –FA, FOLHD & FA CCTV Systems

The Fire Alarm, FOLHD, and FA CCTV Systems installed at the EJMT are for the most part maintenance free under normal operations. The systems are self-supervised and report off normal conditions to the tunnel operations staff via the workstations.

There are some routine maintenance activities that need to be undertaken on each system which are listed below.

#### FOLHD Heat Detection System

- The fiber optic connectors that plug into the FOLHD detectors should be removed, cleaned and checked for cleanliness.  
Scheduled Time: 1<sup>st</sup> Quarter  
  
Scheduled Duration: 4 hours
- Restart the FOLHD detector to verify SYSTEM READY light activates indicating normal detector operation.  
Scheduled Time: 1<sup>st</sup> Quarter  
  
Scheduled Duration: 2 Hours
- Perform QUICK START test of detector software, by connecting a computer to the detector and running scans all connected channels.  
Scheduled Time: 1<sup>st</sup> Quarter  
  
Scheduled Duration: 4 Hours
- Perform calibration of the FOLHD fiber to insure the system remains within its operational parameters. This is done by subjecting the FOLHD fiber to a specific heat source at a specific location on the FOLHD fiber (the FOLHD fiber calibration boxes in the center roadway bays).  
Scheduled Time: 1<sup>st</sup> Quarter  
  
Scheduled Duration: 4 Hours



## Annual Maintenance Plan –FA, FOLHD & FA CCTV Systems

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- Disconnect each leg of the FOHLD fiber to verify proper transmission of the fiber channel signals to the FA System and the Fireworks display system.  
Scheduled Time: 1<sup>st</sup> Quarter  
  
Scheduled Time: 4 Hours
- Simulated FOLHD alarm testing is covered in the Short Term Operations Plan.

### Fire Alarm System

- Fireworks database upgrades to be performed on an as needed basis, if required.  
Scheduled Time: Unknown  
  
Scheduled Duration: 4 Hours
- Fireworks database review and disk clean-up. This is a general PC “health” review to and clear any logged database issues over the course of normal operation.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Time: 8 Hours
- Fireworks History Log Review. This is a general review of the logged activities that occur on the system to identify possible issues to be addressed with the installed equipment. This review will be done in conjunction with the Fireworks database review and disk clean-up.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Duration: 8 Hours
- Re-Mapping of the FA System device loops, to review communication status of all installed devices, to be performed during the 1<sup>st</sup> and last year of the Warranty period.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Duration: 8 Hours
- Review of the Fireworks UPS Systems diagnostics  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Duration: 4 Hours



## Annual Maintenance Plan –FA, FOLHD & FA CCTV Systems

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- Review the device “sensitivity” of the smoke detectors installed, to review level of cleanliness. Detectors to be cleaned, as required.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Duration: Less than 1 Hour
- Replace the CO element in the combo heat/CO detector. The CO element needs to be replaced every 7 years, so this device CO element will be replaced at the Owner’s expense in the last year of warranty.  
Scheduled Time: 4<sup>th</sup> Quarter 2020  
  
Scheduled Duration: Less than 1 Hour
- Replace the sealed batteries in the Fire Alarm and UPS Systems. The sealed lead acid batteries are maintenance free so no normal maintenance is required. These batteries do require replacement every 5 years, so they will be replaced at the Owner’s expense in the last year of warranty.  
Scheduled Time: 4<sup>th</sup> Quarter 2020  
  
Scheduled Duration: 16 Hours

### FA CCTV System

- Workstation database upgrades to be performed on an as needed basis, if required.  
Scheduled Time: Unknown  
  
Scheduled Duration: 4 Hours
- Workstation database review and disk clean-up. This is a general PC “health” review to and clear any logged database issues over the course of normal operation.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Time: 8 Hours
- Network Video Server database review and disk clean-up. This is a general PC “health” review to and clear any logged database issues over the course of normal operation.  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Time: 8 Hours



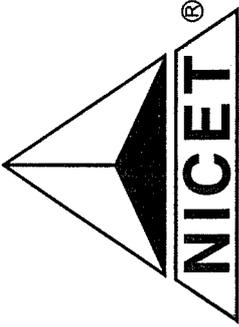
Annual Maintenance Plan –FA, FOLHD & FA CCTV Systems

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- Review of the Workstation and Equipment Rack UPS Systems diagnostics  
Scheduled Time: 4<sup>th</sup> Quarter  
  
Scheduled Duration: 4 Hours
- Replace the sealed batteries in the FACCTV and Equipment Rack UPS Systems. The sealed lead acid batteries are maintenance free so no normal maintenance is required. These batteries do require replacement every 5 years, so they will be replaced at the Owner's expense in the last year of warranty.  
Scheduled Time: 4<sup>th</sup> Quarter 2020  
  
Scheduled Duration: 4 Hours

End of AMP Plan.

# **CERTIFICATIONS** **SECTION**



# NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES®

*Providing Certification Programs Since 1961*

BE IT KNOWN THAT

**John G. Ballman**

IS HEREBY AWARDED CERTIFICATION AT

LEVEL IV

IN FIRE PROTECTION ENGINEERING TECHNOLOGY  
FIRE ALARM SYSTEMS

**BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE,  
EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.**

Certification Valid through November 1, 2015

CERTIFICATION NUMBER 101808

CHAIRMAN OF THE NICET BOARD OF GOVERNORS

A DIVISION OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

# Certificate of Training

## Fiber Optic Linear Heat Detection Installation and Operation of LIOS LHD for Fire Detection

This is to certify that

**Mr. John Ballman**

successfully completed the above course.

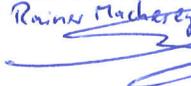
Date/ Duration

06 Oct. 2014, 5 days

Venue

LIOS Technology GmbH, Cologne, Germany

Course Leader



LIOS Technology GmbH - [www.lios-tech.com](http://www.lios-tech.com)

# Certificate of Training

## Fiber Optic Linear Heat Detection Installation and Operation of LIOS LHD for Fire Detection

This is to certify that

**Mr. Arden Everhart, Jr.**

successfully completed the above course.

Date/ Duration

06 Oct. 2014, 5 days

Venue

LIOS Technology GmbH, Cologne, Germany

Course Leader



LIOS Technology GmbH - [www.lios-tech.com](http://www.lios-tech.com)



**NATIONAL INSTITUTE FOR CERTIFICATION  
IN ENGINEERING TECHNOLOGIES®**

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**BE IT KNOWN THAT**

**Michael A. Howell, Jr**

**IS HEREBY AWARDED CERTIFICATION AT**

**LEVEL III**

**IN FIRE PROTECTION ENGINEERING TECHNOLOGY  
FIRE ALARM SYSTEMS**

**BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE,  
EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.**

Certification Valid through September 1, 2015

CERTIFICATION NUMBER 102119

CHAIRMAN OF THE NICET BOARD OF GOVERNORS

A DIVISION OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

# Certificate of Training

## Fiber Optic Linear Heat Detection Installation and Operation of LIOS LHD for Fire Detection

This is to certify that

**Mr. Michael Howell**

successfully completed the above course.

Date/ Duration

06 Oct. 2014, 5 days

Venue

LIOS Technology GmbH, Cologne, Germany

LIOS Technology GmbH - [www.lios-tech.com](http://www.lios-tech.com)

Course Leader

*Rainer Mackey*



# Certificate of Training

## Fiber Optic Linear Heat Detection Installation and Operation of LIOS LHD for Fire Detection

This is to certify that

**Mr. Tyler Dunlap**

successfully completed the above course.

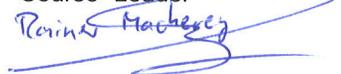
Date/ Duration

06 Oct. 2014, 5 days

Venue

LIOS Technology GmbH, Cologne, Germany

Course Leader



LIOS Technology GmbH - [www.lios-tech.com](http://www.lios-tech.com)

## Company Transcript

### Systems Group - 4023

800 E. 64th Ave. #17  
 Denver, CO 80229 US

	Completion Status	Date Marked Complete	Registration Date
<b>3-MODCOM</b>			
Allen Bruce	Successful	04/26/2002	09/29/2010
Dominguez Matthew	Successful	11/04/2001	09/29/2010
Ebaugh Dave	Successful	06/30/2006	09/29/2010
Hilfiker Shawn	Successful	03/18/2010	09/29/2010
Howell Michael	Successful	01/21/2015	05/02/2013
Tiner Kenneth	Successful	03/14/2004	09/29/2010
<b>EST iO64 &amp; iO500</b>			
Colacchio Kerry	Successful	05/05/2012	04/18/2012
Dunlap Tyler	Successful	06/05/2012	04/24/2012
Pool Brent	Successful	02/14/2013	04/17/2012
<b>EST2 Bridge Self-Study</b>			
Dominguez Matthew	Successful	12/26/2001	09/29/2010
Hilfiker Shawn	Successful	07/28/2014	07/28/2014
Pool Brent	Successful	07/22/2014	07/15/2014
Tiner Kenneth	Successful	07/01/2014	06/12/2014
<b>EST2 Hardware and Installation Self-Study</b>			
Ballman John G.	Successful	03/30/2002	09/29/2010
Bragdon Richard	Successful	03/06/2002	09/29/2010
Briggs Kris	Successful	12/03/2000	09/29/2010
Dominguez Matthew	Successful	11/11/2001	09/29/2010

	Completion Status	Date Marked Complete	Registration Date
Shurtleff Michael	Successful	10/08/1999	09/29/2010
<b>EST2 Program &amp; Network</b>			
Ballman John G.	Successful	07/01/2009	09/29/2010
Briggs Kris	Successful	12/01/2000	09/16/2011
Howell Michael	Successful	07/01/2009	09/29/2010
Shurtleff Michael	Successful	07/01/2009	09/29/2010
<b>EST3 Series Certification</b>			
Allen Bruce	Successful	07/01/2009	09/29/2010
Anderson David	Successful	07/01/2009	09/29/2010
Bobka Justin	Successful	07/21/2008	09/29/2010
Carruth Dan	Successful	04/15/2011	04/05/2011
Colacchio Kerry	Successful	03/18/2015	01/16/2015
Dominguez Matthew	Successful	07/01/2009	09/29/2010
Dunlap Tyler	Successful	04/19/2013	01/23/2013
Ebaugh Dave	Successful	03/27/2006	09/29/2010
Everhart Arden	Successful	07/01/2009	09/29/2010
Garcia Dan	Successful	10/10/2011	08/26/2011
Gutzke Bruce	Successful	07/01/2009	09/29/2010
Hanson Ryan	Successful	07/21/2008	09/29/2010
Hilfiker Shawn	Successful	07/09/2007	09/29/2010
Hilfiker Shawn	Successful	07/28/2011	07/14/2011
Howell Michael	Successful	07/01/2009	09/29/2010
Howell Michael	Successful	10/25/2011	09/19/2011
Lawrence Todd	Successful	09/17/2007	09/29/2010
Martin Darren	Successful	01/15/2010	09/29/2010
Mohring Steve	Successful	09/13/2013	07/08/2013
Pickens Benji	Successful	07/20/2009	09/29/2010
Pool Brent	Successful	07/01/2009	09/29/2010
Shurtleff Michael	Successful	07/01/2009	09/29/2010
Tiner Kenneth	Successful	07/01/2009	09/29/2010
Tiner Kenneth	Successful	04/29/2012	01/24/2012
Trenaman Jeffrey	Successful	03/26/2015	01/08/2015

	Completion Status	Date Marked Complete	Registration Date
Wade Robert	Successful	07/29/2013	05/22/2013
<b>EST3 Series Introduction</b>			
Bobka Justin	Successful	07/09/2008	09/29/2010
Bragdon Richard	Successful	10/25/2002	09/29/2010
Carruth Dan	Successful	04/07/2011	04/05/2011
Donohoe John	Successful	10/25/2012	09/12/2012
Dunlap Tyler	Successful	04/15/2013	01/23/2013
Ebaugh Dave	Successful	03/26/2005	09/29/2010
Garcia Dan	Successful	09/27/2011	08/04/2011
Gutzke Bruce	Successful	12/09/1999	09/29/2010
Hanson Ryan	Successful	07/07/2008	09/29/2010
Hicks Nate	Successful	07/18/2013	07/18/2013
Hilfiker Shawn	Successful	06/17/2007	09/29/2010
Lawrence Todd	Successful	09/14/2007	09/29/2010
Martin Darren	Successful	12/28/2009	09/29/2010
Mohring Steve	Successful	07/10/2013	07/10/2013
Pickens Benji	Successful	07/14/2009	09/29/2010
Pool Brent	Successful	07/01/2009	09/29/2010
Shurtleff Michael	Successful	04/03/2000	09/29/2010
Tiner Kenneth	Successful	04/29/2001	09/29/2010
<b>EST3 Synergy Enabled Certification</b>			
Allen Bruce	Successful	07/01/2009	09/29/2010
Dominguez Matthew	Successful	07/01/2009	09/29/2010
<b>FireWorks Certification</b>			
Allen Bruce	Successful	07/01/2009	09/29/2010
Anderson David	Successful	03/21/2005	09/29/2010
Dominguez Matthew	Successful	11/08/2004	09/29/2010
Dunlap Tyler	Successful	04/26/2013	01/23/2013
Ebaugh Dave	Successful	01/20/2012	11/11/2011
Hanson Ryan	Successful	02/22/2013	01/02/2013
Howell Michael	Successful	03/19/2007	09/29/2010
Martin Darren	Successful	06/17/2011	06/02/2011

	Completion Status	Date Marked Complete	Registration Date
Mohring Steve	Successful	03/26/2015	01/08/2015
Pool Brent	Successful	06/15/2012	06/06/2012
Tiner Kenneth	Successful	02/17/2006	09/29/2010
<b>FireWorks Introduction</b>			
Dunlap Tyler	Successful	04/24/2013	01/23/2013
Ebaugh Dave	Successful	11/23/2011	11/11/2011
Martin Darren	Successful	06/10/2011	06/02/2011
Pool Brent	Successful	06/08/2012	06/06/2012
<b>Managed Industrial Ethernet Switch Certification</b>			
Howell Michael	Successful	08/07/2014	07/23/2014
<b>Mass Notification (MNEC)</b>			
Howell Michael	Successful	06/27/2011	06/09/2011
Martin Darren	Successful	06/27/2011	06/09/2011
<b>QuickStart with Signature Series</b>			
Lawrence Todd	Successful	01/24/2006	09/29/2010
Simoneau Steve	Successful	03/20/2007	09/29/2010
<b>Siga2 eLearning</b>			
Pool Brent	Successful	05/20/2013	05/02/2013
<b>Signature Series eLearning</b>			
Pool Brent	Successful	04/22/2013	02/14/2013

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project
Rev. 3	SHORT-TERM OPERATIONS PLAN

### 3.0 FIRE SUPPRESSION

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# **SHORT TERM OPERATION PLAN**

## **(STOP)**

### **APPROACH TO PROJECT MAINTENANCE AND ANNUAL TEST**

Western States Fire Protection (WSFP) will follow the methods of Inspection, Testing and Maintenance (ITM) as described in NFPA 25, 2011.

The Western States Fire Protection crew will be led by senior technicians that were integral in the installation of the system. By bringing their experience and knowledge of the installed systems and required safety protocol and facility procedures to the Inspection Team this will ensure all CDOT requirements will be followed.

On a Monthly Basis the following maintenance will be conducted on the fire pump.

**MONTHLY TESTING** – Per NFPA 25, Chapter 8 monthly fire pump churn tests will be conducted. Attached is the detailed Method of Procedure.

On an Annual Basis the following Inspection, Testing and Maintenance will be conducted.

**INSPECTION** – Consists of a visual examination of the system or portion thereof to verify that it appears to be in operating condition and is free of physical damage. NFPA 25 Chapter 3 3.2.23

**FREQUENCY: The following will be performed on an Annual Basis as required by Authority Having Jurisdiction (AHJ) and NFPA 25**

Complete 100% visual inspection of the hot boxes, hangars, exposed piping, sprinklers, valves, gauges and other system components.

- Visuals will include the installed system, piping, insulation protecting the fire sprinkler lines and valve enclosures as well as exposed portions throughout the tunnel proper. To complete the visuals in the tunnel itself coordination will be handled between WSFP and CDOT, following all required protocol and procedures.
- Inspection of the fire pump to verify that the pump assembly appears to be in operating condition and is free from physical damage.

**TESTING** - Is a procedure used to determine the operational status of a system by conducting periodic physical checks, such as waterflow tests, fire pump tests, and trip tests of deluge valves. NFPA 25 Chapter 3 3.47. This testing is a follow up to the original acceptance test at specified intervals.

**FREQUENCY: The following will be performed on an ANNUAL BASIS as required by AHJ and NFPA 25. We recommend the month of May after ski season and before Memorial Day. We request two nights full tunnel closure for each tunnel. For example the North tunnel would be closed from 10PM to 6AM on Monday and Tuesday with Wednesday and Thursday as backup days due to weather. The week following would be similar for the South tunnel.**

1. Annual flow test of the 1250 GPM fire pump via flow meter and/or pump test header.
  - A full flow test will be conducted at the time of the commissioning of the system with the fire pump test header then again in year four; Per NFPA 25 Chapter 8 full flow is required every three years
  - Procedures used during the commissioning of the system will be followed for future full flow testing in year four.
  - Fire Pump Installer, Patterson Pump Company, will complete the annual flow test of the fire pump. This annual testing will be coordinated with other testing during regular work hours in the month of May.
2. Test every device provided by WSFP with Systems Group. Every control valve will be closed to ensure the tamper switch correctly indicates a trouble signal at the FACP. Every pressure switch will be actuated to ensure the correct signal is identified at the FACP. Every solenoid valve will be actuated from the FACP with the valve closed and no flow to the roadway below. The testing of these devices will be coordinated with Systems Group to ensure all device operate as intended.
3. Provide integrated testing for each of the system types in both tunnels. The North (Eisenhower) tunnel has 3 nozzle and 4 nozzle systems. The South (Johnson) has the 12 nozzle Johnson and the portal systems. One of each system type is to be tested so all automatic functions work as intended. This integrated system testing is similar to the construction acceptance testing described in the RFP. The linear heat detector will trigger the actuation of the flow control valve while shutting off the circulation pumps and starting the fire pumps. After one system is flowing another will be electrically actuated from the FACP. After flowing two systems, the systems will be shut down and all functions should return to normal.
4. Flow test 20% of the deluge systems with water to the roadway below. For this testing, the fire pump and circulation pumps will be turned off. The actuation of the flow control valves will be from the FACP. The water discharge pattern will verified from below to ensure no obstructions. Alternating systems every year will ensure all valves are flowed every five years..
5. Attach visible Tag on all systems tested each year.
6. Compile and complete "Report of Inspections" which will reflect all results found during testing. Sample reports attached.

**MAINTENANCE:** Is the work performed to keep equipment operable or to make repairs as per NFPA 25, Chapter 3.3.3.25

**FREQUENCY: The following will be performed on an ANNUAL BASIS as required by AHJ and NFPA 25**

## **MAINTENANCE SCOPE**

All devices and valves shall be exercised annually. This includes all butterfly valves, pressure switches, and solenoid valves. The fire pump should be ran for 30 minutes monthly for maintenance.

Any items noted during the annual ITM will be addressed according to the CDOT reliability requirements.

The Contractor shall perform repairs during the short-term operational period to achieve the reliability requirements specified herein.

## **RELIABILITY REQUIREMENTS**

**EMERGENCY FAILURES:** An emergency failure is any failure that prevents the monitoring and control of equipment supplied and installed. The following conditions shall constitute emergency failures:

- Loss of the ability to control or monitor two or more devices.
- Loss of the ability of the CCTV subsystem to process video images, control or monitor video images from two or more cameras.
- Loss of the ability to control or monitor the LHD subsystem.
- Loss of functionality of all OIS operator console workstations. Loss of functionality shall include hardware and software failures of the CPU, monitor, keyboard, and mouse.
- Loss of both the primary and secondary servers comprising a redundant pair.
- Loading of computer resources including CPU, memory, and mass-storage media (e.g., disk) usage above 90 percent averaged over a 30-minute period for any server or workstation.
- Two or more priority failures, as defined herein, active at the same time.

**PRIORITY FAILURES:** A priority failure is any failure that eliminates the redundancy of a subsystem or affects the information processing functions of the computer hardware and software. A priority failure also includes any failure that degrades performance so that the system capability is reduced, but not eliminated. The following conditions shall constitute priority failures:

- Loss of the ability to control or monitor one device.
- Loss of the ability of the CCTV subsystem to control or monitor video images from one CCTV camera.
- Loss of either the primary or secondary server comprising part of a redundant pair.
- Loss of functionality, as defined herein, of one OIS operator console workstation.
- Loss of information processing functions including, but not limited to, alarm management, graphics and video display management, and database logging and reporting.
- Loading of computer resources including CPU and mass-storage media (e.g. disk) usage above 60 percent averaged over a 30-minute period for any server or workstation.

**ROUTINE FAILURES:** A routine failure is a failure that impairs system performance, but permits the system to perform its designed functional capabilities. The failure of any single system component that does not result in an emergency or priority failure shall be classified as a routine failure.

The Contractor shall respond to failures and complete repairs to restore system function so as to maintain the following Mean Time to Respond (MTTR) on a 12-month basis.

- Emergency Failures: MTTR less than or equal to 8 hours
- Priority Failures: MTTR less than or equal to 24 hours
- Routine Failures: MTTR less than or equal to 72 hours

Response time begins when CDOT notifies the Contractor of a failure condition and ends when the Contractor arrives on site. The Contractor shall maintain a 24-hour, 7 days per week service to receive and log failure condition notifications from CDOT.

**SUMMARY** - Complete the Annual Test and Inspection including 100% of visual inspections and 100% device testing. 20% of the valves shall be flowed annually completing 100% of the valves every five (5) years. This is an Engineered System therefore testing procedures will comply with NFPA 25 and NFPA 20.

**ANNUAL** - The crew will consist of four senior technicians, requiring (8) days to complete with an estimated 9-hour work day.

# INSPECTION & TESTING OF DELUGE FIRE SPRINKLER SYSTEM

## SCOPE OF WORK

- Visually inspect condition of sprinklers, exposed piping and hangers, valves, gauges, fire department connection and other system components. Visual inspections will be conducted from floor level. Note: per NFPA 25, sprinklers, piping, and fittings installed in concealed spaces such as above suspended ceilings shall not require inspection.
- Operate control valves and lubricate stems if necessary
- Review visible sprinklers for proper sprinkler orientation, temperature rating, loading and obstruction to spray discharge
- Inspect spare head cabinet for proper sprinkler head (quantity and type) and wrench assortment
- Verify control valves are in proper position
- Verify operation of alarms
- Check for obvious changes in building fire hazard that may affect system adequacy
- Test system pressure switches by opening by manual bypass within IVE or electrical actuation of deluge valve for correct alarm annunciation at FACP.
- Test valve supervisory/tamper switches
  - Test for trouble annunciation at FACP
  - Inspect for proper adjustment (60 seconds max.). Adjust as required
- Check prim line valve positions to ensure they are correct.
- Visually inspect insulation at IVE's and pipe for integrity.
- Perform annual test of every solenoid valve thru electrical actuation with the control valve in the closed position to ensure all valves will open when needed.
- Visually inspect all low point drains (Ball drips) located within the supply plenum.
- Tag deluge systems with date of inspection
- Compile a complete "Report of Inspections" and explain deficiencies found, corrective action recommended to be taken, and explanation of "no" answers

NOTE: Scope of work has been amended for EJMT as required by the Authority Having Jurisdiction for that location.

Local authorities require a building owner to maintain dry pipe fire protection systems in acceptable condition and to maintain inspection, testing and maintenance records. Western States Fire Protection Co. will send notification in writing of any condition or deficiency requiring correction or repair.

# INSPECTION & TESTING OF ELECTRIC FIRE PUMP

## ANNUAL INSPECTION

### SCOPE OF WORK

Local authorities require a building owner to maintain fire protection systems in acceptable condition and to maintain inspection, testing and maintenance records.

The annual flow test required for the EJMT will be conducted from a test header located at the west end of the Eisenhower Tunnel and will be performed in a manner that does not interrupt traffic.

- Visually inspect condition of system components
- Visually inspect condition of pump house or room
- Adjust packing glands
- Verify all control valves are in proper position
- Check accuracy of pressure gauges and sensors
- Verify operation of alarms
- Normal lubrication of bearings and gear drives
- Verify pressure maintenance pump (jockey pump) and fire pump start/stop pressures
- Start electric driver by automatic and manual means
- Verify settings and proper operation of circulating and pressure relief valves
- Verify shaft coupling alignment and grease if necessary
- Perform full flow discharge tests at minimum, rated and peak flows
- Record fire pump specifications including manufacturer, type, and rating of pump
- Record motor specifications
- Tag fire pump with date of inspection
- Compile a complete “Report of Inspections” with a fire pump curve chart. Explain deficiencies found, corrective action recommended be taken, and explanation of “no” answers.

## **Monthly Fire Pump Test**

### **SCOPE OF WORK**

- Take the Fire Alarms offline.
- Disable any Horns and Strobes in buildings.
- Upon entering pump room, check all gauges to make sure they are up to normal static pressure or system working and record pressure readings (PSI).
- Check to insure that the supply valves on the fire pump are open.
- Close the discharge valve on the Fire Pump all the way to keep from pressurizing the entire system.
- Open pump test valves all the way.
- MANUAL START—Push green start button on fire pump control panel. Record pressure readings (PSI).
- While the Fire Pump is running check to see if the casing relief valve is discharging water. (This helps to keep the pump cool during the test).
- After the 30 minutes are done, Push the red stop button and hold until the Fire Pump stops rotating. Then release the button.
- Let system stabilize for approximately 5 minutes.
- Close the pump test valves all the way.
- Open the discharge valve of the Fire Pump all the way.
- Reset & restore ALL Alarms in the building.
- Return the system to Normal.

## **SAFETY**

WESTERN STATES FIRE PROTECTION has provided a copy of our Safety Manual listing staff training, safety procedures and protocols to address the hazardous conditions associated with the maintenance and testing work.

In addition to following the safety procedures outlined in the supplied manual the following apply:

### **Book 2 Section 1 Exhibit A: Special Construction Requirements**

#### **A.1 Tunnel Safety Requirements**

- a) All equipment, materials, and people shall be confined to the lane closed for the work parties. No equipment, materials, or people shall cross the centerline of the roadway encroaching into the lane of travel at any time.
- b) No materials, equipment, or people shall enter or exit the tunnel roadway until authorized to do so by the CDOT representative or in-tunnel supervisor.
- c) All gas powered vehicles shall be turned off when parked in the closed lane within the tunnel and shall be parked with emergency brake set, the transmission in park, if an automatic, or in gear, if a standard transmission.
- d) Hard hats and safety vests shall be worn at all times by all members of the work party.
- e) Use of drugs or alcohol, or persons under the influence of drugs or alcohol, are prohibited within the tunnel.
- f) No flash bulbs, strobes, high intensity light bars, headlights, or other bright lights shall be aimed at oncoming traffic at any time.
- g) Each member of the work party shall have their own flashlight to be used in the event of a power failure.
- h) Members of the work party are not allowed to leave the tunnel and enter the crosscut passageways unless authorized to do so by the in-tunnel supervisor.
- i) Members of the work party are not allowed to open any junction boxes or other electrical equipment boxes.
- j) Horseplay (i.e. running, throwing materials, etc.) shall not be permitted.
- k) Pulpits, manholes, fire hydrants, fire extinguisher cabinets, catch basins, and all other covers and door openings shall not be opened without the authority of the in-tunnel supervisor, in the absence of an emergency.
- l) Goggles, safety glasses, ear, and steel toe protection shall be worn as appropriate while performing various tasks.

- m) Ladders shall be placed and monitored to ensure the ladders are not allowed to "kick-out" from the bottom into the traveled lane.
- n) Tunnel lighting adjacent to the walls shall not be tampered with in any manner.
- o) Tunnel traffic control systems may be modified with the Approval of CDOT.
- p) Vehicles shall not be parked directly underneath the message boards.
- q) No bright light shall be permitted to be directed at the tunnel's closed circuit TV cameras.
- r) The in-tunnel supervisor's instructions shall be followed at all times.
- s) No lifting mechanisms or any part thereof shall be allowed to protrude into the traveled lane.
- t) At no time shall an individual or work party enter the air ducts or tunnel without radio communication with the tunnel Control Room operator.
- u) CDOT reserves the right to direct the Contractor to leave the tunnel at any time due to emergencies or unforeseen circumstance, as they may occur.
- v) No Smoking in State Buildings.
- w) CDOT Identification card must be worn at all times.

## **INSPECTION SCHEDULE:**

**YEAR ONE – 2015** Commissioning Test

**YEAR TWO –MAY 2016** Annual Test and Inspection includes:

- 1) Fire Pump testing via flow meter
- 2) Test every tamper switch, pressure switch, and solenoid valve (No Flow)
- 3) Integrated System Testing – Two Areas per Tunnel and four total
- 4) Flow 20% system to roadway
- 5) Visual Inspection of 100% of system

**YEAR THREE – MAY 2017** Annual Test and Inspection

- 1) Fire Pump testing via flow meter
- 2) Test every tamper switch, pressure switch, and solenoid valve (No Flow)
- 3) Integrated System Testing – Two Areas per Tunnel and four total
- 4) Flow 20% system to roadway
- 5) Visual Inspection of 100% of system

**YEAR FOUR – APRIL 2018** Annual Test and Inspection

- 1) Fire Pump testing thru pump test header (Full flow Test)
- 2) Test every tamper switch, pressure switch, and solenoid valve (No Flow)
- 3) Integrated System Testing – Two Areas per Tunnel and four total
- 4) Flow 20% system to roadway
- 5) Visual Inspection of 100% of system

**YEAR FIVE – APRIL 2019** Annual Test and Inspection

- 1) Fire Pump testing via flow meter
- 2) Test every tamper switch, pressure switch, and solenoid valve (No Flow)
- 3) Integrated System Testing – Two Areas per Tunnel and four total
- 4) Flow 20% system to roadway
- 5) Visual Inspection of 100% of system

## **RESPONSE TO FAULT CONDITIONS**

Western States Fire Protection is available 24-hours per day, 7-days per week, and 365-days per year without exception.

Emergency Calls will be responded to via phone within 10-minutes of notification during normal business hours and within 30-minutes for after-hours notification.

Emergency calls during Normal Business Hours, 7:00 am to 5:00 pm M-F all requests are handled by a full-time employee of Western States Fire Protection who will ensure all calls are directed to the appropriate department and personnel.

CDOT is provided with the Centennial Office information as well as cell phone/email information for the dedicated Maintenance and Service Personnel.

The Field Supervisors have immediate contact via cell/text/email with all Western States Fire Protection employees in order to dispatch the appropriate individual(s) for the emergency service.

Western States Fire Protection employee will gather specific information from the CDOT service requester as to what the specific emergency is and contact person upon arrival at the site.

Emergency calls during After-Hours, all hours other than stated above for Normal Business Hours are received by a third-party, non-employee of Western States Fire Protection, contracted Answering Service. This Contractor is provided with all cell phones for Project Managers, Supervisors and Field Personnel.

Western States Fire Protection develops and maintains an “on-call” list for fire sprinkler service work. This list is provided to the Answering Service Contractor in order to expedite Emergency Service Requests. If the Answering Service does not reach the first individual on the list within the first 10-minutes they move to the next on-call technician.

Standard Service Work will be addressed through the following Reliability Requirements.

## **RELIABILITY REQUIREMENTS**

**Emergency Failures:** An emergency failure is any failure that prevents the monitoring and control of equipment supplied and installed. The following conditions shall constitute emergency failures:

- Loss of the ability to control or monitor two or more devices.
- Loss of the ability of the CCTV subsystem to process video images, control or monitor video images from two or more cameras.
- Loss of the ability to control or monitor the LHD subsystem.
- Loss of functionality of all OIS operator console workstations. Loss of functionality shall include hardware and software failures of the CPU, monitor, keyboard, and mouse.
- Loss of both the primary and secondary servers comprising a redundant pair.
- Loading of computer resources including CPU, memory, and mass-storage media (e.g., disk) usage above 90 percent averaged over a 30-minute period for any server or workstation.
- Two or more priority failures, as defined herein, active at the same time.

**Priority Failures:** A priority failure is any failure that eliminates the redundancy of a subsystem or affects the information processing functions of the computer hardware and software. A priority failure also includes any failure that degrades performance so that the system capability is reduced, but not eliminated. The following conditions shall constitute priority failures:

- Loss of the ability to control or monitor one device.
- Loss of the ability of the CCTV subsystem to control or monitor video images from one CCTV camera.
- Loss of either the primary or secondary server comprising part of a redundant pair.
- Loss of functionality, as defined herein, of one OIS operator console workstation.
- Loss of information processing functions including, but not limited to, alarm management, graphics and video display management, and database logging and reporting.
- Loading of computer resources including CPU and mass-storage media (e.g. disk) usage above 60 percent averaged over a 30-minute period for any server or workstation.

**Routine Failures:** A routine failure is a failure that impairs system performance, but permits the system to perform its designed functional capabilities. The failure of any single system component that does not result in an emergency or priority failure shall be classified as a routine failure.

The Contractor shall respond to failures and complete repairs to restore system function so as to maintain the following Mean Time to Respond (MTTR) on a 12-month basis.

- Emergency Failures: MTTR less than or equal to 8 hours
- Priority Failures: MTTR less than or equal to 24 hours
- Routine Failures: MTTR less than or equal to 72 hours

Response time begins when CDOT notifies the Contractor of a failure condition and ends when the Contractor arrives on site. The Contractor shall maintain a 24-hour, 7 days per week service to receive and log failure condition notifications from CDOT.

**Emergency Contacts**

1. Jon Dowdle	720-219-0605	Cell	jon.dowdle@wsfp.us
2. Philip Weskamp	303-549-9262	Cell	philip.weskamp@wsfp.us
3. Kevin King	303-549-9348	Cell	<a href="mailto:kevin.king@wsfp.us">kevin.king@wsfp.us</a>
4. John Hulett	720-284-2472	Cell	john.hulett@wsfp.us
5. Answering Service	303-792-0022	24/365	

**Response Time**

Verbal response	30-minutes (Normal Hours)	60-minutes (After Hours)
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On Site per the Reliability Requirements

## **STRATEGY FOR SOURCING SPARE PARTS, SPECIAL TOOLS AND CONSUMABLES**

Western States Fire Protection will coordinate all Fixed Fire Suppression System (FFSS) work with vendors. Spare parts, including pipe, grooved fittings, gaskets, control valves and check valves will be available through our Centennial warehouse. Deluge valves and nozzles will be available from local retailers. The fire pump spare parts will be available from the fire pump vendor that also has a local presence.

## **WARRANTIES ON EQUIPMENT**

As per the contract.

## **STAFF ORGANIZATION**

(Resumes attached)

### **FIELD SUPERINTENDENT**

**Phillip Weskamp** - Managed all personnel during the Installation Process of the Fire Suppression System for EJMT; tasked with oversight of all Inspections, Maintenance and Service of 5-year project.

UA Star Certified, NICET II Fire Sprinkler, Denver Licensed Fire Sprinkler

### **INSPECTION SUPERVISOR**

**Kevin King** – Tasked with Oversight of the Annual Test and Inspection, overseeing all reporting and documentation as well as an Inspector

UA Star Certified, NICET III Fire Sprinkler, Denver Licensed Fire Sprinkler, Denver Licensed Fire Pump

### **LEAD INSPECTOR**

**Jon Dowdle** – Foreman for the Installation of the Fire Suppression system on the EJMT project. Tasked with the position of the Lead Inspector to ensure all required ITM is complete and all CDOT and WSFP safety requirements are followed.

UA Star Certified, NICET II Fire Sprinkler, Denver Licensed Fire Sprinkler, Denver Licensed Fire Pump

### **INSPECTORS**

**Tony Sandoval** – Fire Sprinkler Inspector

UA Star Certified, NICET III Fire Sprinkler, Denver Licensed Fire Sprinkler, Denver Licensed Fire Pump

**Chuck Chennaux** – Fire Sprinkler Inspector

NICET I Fire Sprinkler, Denver Licensed Fire Sprinkler

### **SERVICE AND MAINTENANCE TECHNICIANS**

Technicians listed above, Philip Weskamp, Kevin King, Jon Dowdle, Tony Sandoval

Ralph Sanchez – Resume attached

Jose Fuentes – Resume attached

Bryon Guyer – Resume attached

Manuel Zamora – Resume attached

**Philip Weskamp**  
3087 S. Emporia Ct.  
Denver, CO 80231  
[Philip.weskamp@wsfp.us](mailto:Philip.weskamp@wsfp.us)

**Summary of qualifications**

**Construction Foreman**

Experienced with wet and dry systems, pre-action systems, deluge systems, residential copper systems, foam systems, rate-of-rise systems, fire pumps, electrical and diesel drivers, back flow devices, and underground piping. In charge of manpower, inspection and finals with the AHJ.

Fire Protection Systems-Installer City and County Denver, CO

Fire Protection Fire Pump Installer City and County Denver, CO

Registered Fire Sprinkler Fitter Colorado Department of Public Safety

UA Star, Nicet Certification Inspection and Testing of Water Based Systems

Backflow ASSE International Certified CPR Certification, 30 hour OSHA, Confined Space Certification

Train-The-Trainer Forklifts(Rough Terrain), Aerial work platforms, JLG

**Education**

2004-2009 Penn State University Pennsylvania, PA

Completed five year Fire Sprinkler Apprenticeship Program in four years

2000- 2002 McCook Community College McCook, NE

Associates degree in Accounting

1995-1999 East High School Denver, CO

**Professional Experience**

**Sprinkler Fitter Journeyman/ Foreman**

Oversee installation of fire protection sprinkler systems at various job sites.

2013- Present- Western States Fire Protection- Superintendent

2009- 2013 - Western States Fire Protection- Foreman

2006-2009 - Western States Fire Protection- Journeyman

2004-2006- Western States Fire Protection- Apprentice

**Labor Experience**

AFFF Foam Systems, Dry & Wet Systems

Deluge Systems, Pre-Action Systems

FM 200 Systems, Sapphire Systems

**Fire Protection Work History**

Byron Rogers Federal Office Building, Denver, CO 200

Buckley Air Force Base, Aurora, CO

Westin Resort and Spa, Avon, CO

Ritz Carlton Residence, Vail, CO

Holly Hydro, Utah

Kevin A. King  
Field Supervisor  
Western States Fire Protection Co.  
7026 South Tucson Way  
Centennial, Colorado 80112  
Office: 303-792-0022  
Mobile: 303-549-9348

Work History:

**L. Nothafft & Sons Fire Protection Co.**

05/1986 to 07/1991

Duties: Started as a apprentice fire sprinkler fitter and graduated to a Journeyman Fire sprinkler fitter.  
Working in all areas of fire sprinkler installations

**Allan Automatic Fire Protection Co.**

07/1991 to 08/1995

Duties: working as a Journeyman fire sprinkler fitter in the area of fire sprinkler underground installation. Warehouse fire sprinkler systems, and on call service Technician.

**L. Nothafft & Sons Fire Protection Co.**

08/1995 to 07/1997

Duties: worked as a foreman on new installation system and on call service Technician.

**Western States Fire Protection Co.**

07/1997 to 10/2001

Duties: worked as Journeyman fire sprinkler installer at Denver International Airport.

**Fire Protection Inc.**

10/2001 to 04/2004

Duties: worked as a Foreman on new construction projects and on call service Technician.

**Arapahoe Fire Protection Co.**

04/2004 to 05/2006

Duties: worked as a Foreman on new construction projects. Retro fir projects, and Backflow tester.

**Western States Fire Protection Co.**

05/2006 to present

Duties: working as the Field Supervisor in the Inspections Department, supervising 12 Technicians in the areas of Fire Sprinkler inspection and Fire Alarm Inspections. Our team has completed inspection at RTD properties. Denver Public Schools, Heritage Square, IBM properties, and Colorado Convention Center.

Qualifications:

NICET Level 3 Inspection & Testing of Water Based Systems

Denver License Fire Sprinkler Installer /Denver License Fire Pump Installer

State of Colorado Licensed Fire Sprinkler installer

ASSE Backflow Tester / ASSE backflow Repair Technician

**Education:**

**George Washington High School (Graduated)**

**United States NAVY (Honorable Discharge)**

**Penn. State Correspondence Courses (Fire Sprinkler Fitter Training Course / Graduated)**

**Pitkin's Tech (Backflow Technician / Graduated)**

Tony Sandoval

June 2001 All-State Fire Protection Apprentice.

December 2001 Indentured into Sprinkler Fitters Local 669.

2001-2006 Enrolled in Local 669 JATC Apprenticeship program through Penn State University.

2003 Residential Fitter/Foreman Status with All State Fire Protection.

2004 Temporary Journeyman/Foreman Status (ASFP)

2005 Obtained the newly required Denver Fire Department Licence For Journeyman Fire Sprinkler Installer.

2006 Completed Local 669 JATC Apprenticeship and turned out as a Journeyman Fire Sprinkler Fitter. (Penn State University UA ID # 1456401).

October 2006 Joined the Western States Fire Protection team as a Foreman Contract Fire Sprinkler Fitter.

2008 Began NICET courses for Inspection & Testing of Automatic Water Based Fire Systems.

2008 obtained NICET levels I and II in this field at Red Rocks Community College (NICET cert. #124912).

Oct. 2008 Passed the UA Star Fire Sprinklerfitting Mastery Exam (cert. # 12268135)

Jan. 2010 Became certified ASSE backflow prevention device tester. Red Rocks Community College. ( cert. # 18123)

2010 Joined the WSFP Inspections team.

July 2010 became ASSE backflow repair certified . (cert. #18123).

Dec. 2010 became certified ASSE 5150 (Fire system backflows cert. # 18123).

2011 Obtained NICET level III in inspection and testing of water based fire protection systems.(Red Rocks Community College Nicet Cert # 124912).

2012 Obtained the newly required Denver Fire Department Fire Pump Installer/Tester License.

presently continuing education both attending and instructing various weekend and evening classes on Fire Systems/ Safety/ Foremans Responsibility etc. provided by WSFP and the joint Apprenticeship Training Committee.

12 plus years of continuous service an a Union Fire Sprinkler Fitter.

Tony Sandoval

Fire Protection Technician



Nicet Level III Certified



UA Star Certified Master Sprinkler Fitter

Phone: 303.792.0022

Cell: 303.594.0714

Email: [tony.sandoval@wsfp.us](mailto:tony.sandoval@wsfp.us)



**Ralph Sanchez**  
**9664 Kendall Ct. Westminster, CO 80021**  
**Ralphsanchez86@yahoo.com**

**Summary of qualifications**

**Construction Foreman**

Experienced with wet and dry systems, pre-action systems, deluge systems, residential copper systems, foam systems, rate-of-rise systems, fire pumps, electrical and diesel drivers, back flow devices, and underground piping. In charge of manpower, inspection and finals with the AHJ.

Fire Protection Systems-Installer    City and County Denver, CO  
Fire Protection Systems Installer    Boulder, CO  
Registered Fire Sprinkler Fitter    Colorado Department of Public Safety

Backflow ASSE International Certified CPR Certification, 30 hour OSHA, Confined Space Certification

Train-The-Trainer Forklifts(Rough Terrain), Aerial work platforms, JLG

**Education**

1996-2000            American Fire Sprinkler Association  
Completed five year Fire Sprinkler Apprenticeship Program in four years

1990-1994            Sun Set High School                            El Paso, TX

**Professional Experience**

**Sprinkler Fitter Journeyman/ Foreman**

Experienced with proven ability to work independently and maintain high levels of productivity, and drive for a success.

2010- Present- Western States Fire Protection-Denver, CO-Foreman-Journeyman  
2005-2010 - Western States Fire Protection- Phoenix, AZ- Foreman  
2000-2005 - Green Fire Systems- Dallas, TX- Journeyman  
1996-2000- Sun City Fire Sprinklers- El Paso, TX- Apprentice

**Labor Experience**

AFFF Foam Systems, Dry & Wet Systems  
Deluge Systems, Pre-Action Systems  
Antfreeze Systems, Underground Piping

**Fire Protection Work History**

Byron Rogers Federal Office Building, Denver, CO 200  
Denver International Airport Control Tower  
Ralph Carr Courthouse –Denver ,CO  
Intel Microsoft Plant

**Jose Fuentes**  
**3923 west Kenyon Avenue**  
**Denver Colorado 80236**  
**Jose.Fuentes@wsfp.us**  
**720-391-7141**

**Summary of qualifications**

**Construction Foreman**

Experienced with wet and dry systems, pre-action systems, deluge systems, residential copper systems, foam systems, , fire pumps, back flow devices, and underground piping  
In charge of manpower, inspections and finals with the AHJ.

Fire Protection Systems-Installer City and County of Denver

Backflow ASSE International Certified CPR Certified

Forklifts(Rough Terrain), Aerial work platforms, JLG

Cpvc certified installer

Bilingual

**Education**

2008-2013.	Washtenaw community college	Ann Arbor,MI
	Fire sprinkler apprenticeship	
1996-2000	Rocky Ford High School	Rocky Ford,CO

**Professional Experience**

**Sprinkler Fitter Journeyman/ Foreman**

Oversee installation of fire protection sprinkler systems at various job sites.

2013- Present. Western States Fire Protection-Foreman

2008-2013. Western States Fire Protection- Apprentice

**Labor Experience**

AFFF Foam Systems, Dry & Wet Systems

Deluge Systems, Pre-Action

**Fire Protection Work History**

Byron Rogers Federal Office Building, Denver, CO 200

Hudson tireville. Hudson Colorado

St. Anthony's hospital west, Lakewood Colorado

**Bryon Curtis Guyer**  
**575 Hayloft Way, Brighton, CO. 80601**  
**Bryon.guyer@wsfp.us**

**Summary of qualifications**

**Construction Foreman**

Experienced with wet and dry systems, pre-action systems, deluge systems, residential copper systems, foam systems, rate-of-rise systems, fire pumps, electrical and diesel drivers, back flow devices, and underground piping. In charge of manpower, inspection and finals with the AHJ.

Fire Protection Systems-Installer City and County Denver, CO

Fire Protection Fire Pump Installer City and County Denver, CO

Registered Fire Sprinkler Fitter Colorado Department of Public Safety

UA Star, Nicet Certification Inspection and Testing of Water Based Systems

Backflow Certified ABPA, CPR Certification, 30 hour OSHA, Confined Space Certification, CPVC Certified Installer

Train-The-Trainer Forklifts(Rough Terrain), Aerial work platforms, JLG

**Education**

2005-2009	Penn State University	
2000- 2002	Metropolitan State College of Denver	Denver, CO.
	General Studies	
1997-2000	Thornton High School	Thornton, CO

**Professional Experience**

**Sprinkler Fitter Journeyman/ Foreman**

Oversee installation of fire protection sprinkler systems at various

2010-Present Western States Fire Protection- Foreman

2007-2010- Western States Fire Protection- Journeyman

2005-2007- Western States Fire Protection- Apprentice

2004-2005- SimplexGrinnell Fire Protection- Portable Fire Protection Inspector

2003-2004- SimplexGrinnell Fire Protection- Apprentice

**Labor Experience**

University of Colorado Hospital. Aurora, CO.

St. Anthony's West Hospital. Lakewood, CO.

Pinnacle at City Park. Denver, CO.

The Glass House. Denver, CO.

Denver Health. Denver, CO.

**Manuel Zamora**  
**2290 Oakland ST**  
**manuel.zamora@wsfp.us**

**Summary of qualifications**

**Construction Foreman**

Experienced with wet and dry systems, pre-action systems, deluge systems, residential copper systems, foam systems, rate-of-rise systems, fire pumps, electrical and diesel drivers, back flow devices, and underground piping. In charge of manpower, inspection and finals with the AHJ.

Fire Protection Systems-Installer City and County Denver, CO

Fire Protection Fire Pump Installer City and County Denver, CO

Registered Fire Sprinkler Fitter Colorado Department of Public Safety

UA Star

Backflow ASSE International Certified CPR Certification, 30 hour OSHA, Confined Space Certification

Train-The-Trainer Forklifts(Rough Terrain), Aerial work platforms, JLG

**Education**

2004-2009	Penn State University	Pennsylvania, PA
1995-1999	John F Kennedy	Denver, CO

**Professional Experience**

**Sprinkler Fitter Journeyman/ Foreman**

Oversee installation of fire protection sprinkler systems at job sites.

2010- present Western States Fire Protection- Foreman

2009-2010 Western States Fire Protection- Journeyman

2004-2009 Western States Fire Protection- Apprentice

**Labor Experience**

AFFF Foam Systems, Dry & Wet Systems

Deluge Systems, Pre-Action Systems

**Fire Protection Work History**

Byron Rogers Federal Office Building, Denver, CO 200

Buckley Air Force Base, Aurora, CO

Westin Resort and Spa, Avon, CO

Ralph Carr Supreme Court House, Denver, CO

Intel, Hillsboro, Oregon

Date:  
Time: pm  
Job Number:  
Technician:



**JOB SITE INFORMATION**

Company Name:  
Street Address:  
City, State, ZIP:  
Phone Number:  
Fax Number:  
Site Contact:

**BILLING INFORMATION**

Company Name:  
Street Address:  
City, State, ZIP:  
Phone Number:  
Fax Number:  
Site Contact:

**Phone Number**

**Fax Number**

API Group Inc. is a member of the U.S. Green Building Council

**Western States Fire Protection**

Albuquerque, NM: Centennial, CO: Fort Collins, CO: Pflugerville, TX: San Antonio, TX: Nampa, ID: Casper, WY:  
Lakewood, CA: Colorado Springs, CO: Houston, TX: Phoenix, AZ: Spokane, WA: Missoula, MT: Glenwood Springs, CO:  
Black Hawk, SD: Grand Prairie, TX: Oregon City, OR: Redmond, WA: Sacramento, CA: Upland, CA: El Paso, TX:

**National Fire Suppression**

Decatur, IL: Kansas City, KS: Maryland Heights, MO:

**Statewide Fire Protection**

Las Vegas, NV







Date:

Job Number:

5. WET SYSTEMS		YES	N/A	NO
A. No. of Systems	Make & Model			
B. Was the date of the gauge(s) checked, since gauges are required to be tested with a calibrated gauge or replaced every five years? If tested with a calibrated gauge and the gauge was not within 3% over the full scale they must be recalibrated or replaced				
C. If applicable, have any dry type heads more than 10 years old had a representative sample tested				
D. Have all known and readily apparent antifreeze systems been tested?				
E. Date antifreeze systems were tested				
F. The antifreeze tests indicate protection to temperature: Sys. 1 Sys. 2 Sys. 3 Sys. 4 Sys. 5				
G. Did alarm valves, water flow alarm indicators and retards test satisfactorily?				

6. DRY SYSTEMS Qtly.		YES	N/A	NO
A. No. of systems	Make & Model			
Date last trip tested	Partial	Full		
B. Are the air pressure and priming water levels normal?				
C. Did the air compressor operate satisfactorily?				
D. Were readily accessible and visible low points drained during this inspection?				
E. Were dry system trip tests performed? (If yes, see DPV Trip Test Report)				
F. Do dry valves appear to be protected from freezing?				
G. Is the dry valve house heated?				

7. SPECIAL SYSTEMS Qtly.		YES	N/A	NO								
A. No. of systems	Make & Model											
Type												
B. Were all known valves tested as required?												
C. Did all heat responsive systems operate satisfactorily?												
D. Did the supervisory features operate during testing?												
Heat Responsive Devices		Type of Test										
Valve No. 1	2	3	4	5	6	Valve No. 7	8	9	10	11	11	
Valve No. 12	13	14	15	16	17	Valve No. 18	19	20	21	22	23	
Valve No. 24	25	26	27	28	29	Valve No. 30	31	32	33	34	35	
Auxiliary Equipment No. _____ Type _____												
Location _____												
Testing Results _____												

8. ALARMS		YES	N/A	NO
A. Did the water motor(s) and gong(s) operate during testing?				
B. Did the electric alarm(s) operate during testing?				
C. Did the supervisory alarm service test satisfactorily?				
D. Was the alarm panel free of alarm and trouble signals upon your arrival If no, please explain below				
E. Was the alarm panel clear of alarm and trouble signals upon your departure If no, please explain below				

9. SPRINKLERS - PIPING		YES	N/A	NO
A. Do sprinklers generally appear to be in good external condition?				
B. Do sprinklers generally appear to be free of corrosion or loading and visible obstructions?				
C. Are extra sprinklers available on the premises?				
D. Does the exterior condition of the fire sprinkler system appear to be satisfactory?				
E. Does hand hose on the sprinkler system appear to be in satisfactory condition?				

EXPLANATION OF ANY PREVIOUS ANSWERS ABOVE THAT MAY REPRESENT A PROBLEM, OR COMMENTS FROM THE INSPECTOR.



Date:

Job Number:

THE INSPECTOR SUGGESTS THE FOLLOWING IMPROVEMENTS.  
HOWEVER, THESE SUGGESTIONS ARE NOT THE RESULT OF AN ENGINEERING SURVEY:

Empty space for listing suggested improvements.

ADJUSTMENTS OR CORRECTIONS MADE:

Empty space for listing adjustments or corrections made.

ALL LISTED CHANGES IN THE OCCUPANCY HAZARD OR FIRE PROTECTION EQUIPMENT, AS ADVISED BY THE OWNER IN SECTION:

Signature of Owner or Owner's Representative \_\_\_\_\_

Printed Name \_\_\_\_\_ Date: \_\_\_\_\_

Does the owner/owner's representative want a copy of this report sent to another location? (i.e. Insurance, Main Office, etc.)

DUPLICATE TO:

STREET: \_\_\_\_\_ ZIP: \_\_\_\_\_

CITY & STATE: \_\_\_\_\_

ATTN: \_\_\_\_\_







Date:

Job Number:

Owner		Deluge Valve Inspection		
		YES	NA	NO
A. Has the owner/owner rep. been notified that the low point drains need to be maintained all year long?				
Owner/Owner Rep. Name: _____				
Signature: _____				
Valve Information				
Valve Serial Numbers	_____			
Manufactures Name	_____			
Manufacturers Date (year)	_____			
Valve Model	_____			
Valve Size	_____			
Location?	_____			
Area protected by Deluge system?	_____			
Before Test		YES	NA	NO
A. Is system control valve in OPEN position?				
B. Does the air compressor if applicable appear to be free of physical damage at the time of inspection?				
C. Do all gauges on the Deluge valve appear to be operable?				
D. Record the pressure (psi) shown on the Water Supply pressure gauge.				Psi
E. Record the pressure (psi) shown on the System side (air) pressure gauge.				Psi
F. Record the pressure (psi) shown on the pressure gauge of the Pneumatic Actuator if applicable.				Psi
G. Are all trim valves on the trim in their proper positions at the time of inspection?				
H. Does the valve room appear to have adequate heat to maintain a minimum of 40°F?				
I. Does the system control valve have any of the following - a tamper, sealed, locked or supervised?				
Main Drain Test		YES	NA	NO
A. Record supply pressure (psi) before opening main drain valve.				Psi
B. Record supply pressure (psi) with main drain valve open.				Psi
C. Record supply pressure (psi) after closing main drain valve.				Psi
Testing		YES	NA	NO
A. Was a trip test of the Deluge valve conducted with control valve fully opened?				
B. Was the system activated using the manual actuation devices?				
C. Was the detection system operated?				
D. If detection was used to trip the valve what type was used? _____				
Partial Trip Test		YES	NA	NO
A. Was partial trip test of the Deluge valve conducted with control valve partially opened?				
B. Record the pressure (psi) shown on the Air Pressure gauge When Supervisory Signals Occurred. If applicable				Psi
C. Record the pressure that the QOD operates.				Psi
D. Record air pressure (psi) at trip of Deluge valve.				Psi
E. Record time in seconds between the start of test and trip of valve.				Sec.
3rd Year Full Trip Test		YES	NA	NO
Date last Full trip Test was performed? _____				
A. Was a full flow trip test of Deluge valve conducted with control valve opened fully?				
B. Record the pressure (psi) shown on the Air Pressure gauge When Supervisory Signals Occurred. If applicable				Psi
C. Record the pressure that the QOD operates.				Psi
D. Record air pressure (psi) at trip of Deluge valve.				Psi
E. Record time in seconds between the start of test and trip of valve.				Sec.
F. Do all open orifices appear to be flowing water freely. (I.E. monitor and sprinkler heads)				
G. Record time in seconds between the start of test and water flow from inspectors test connection				Sec.
H. Record time in seconds between the start of test and trip of valve.				Sec.
5 Year Internal Inspection		YES	NA	NO
Date last Internal inspection and cleaning was performed? _____				
A. Was internal inspection of Deluge valve conducted this year?				
B. Do all components appear to operate properly and move freely?				
C. Has valve been cleaned and appear to be in good condition?				
After Test		YES	NA	NO
Is priming water level correct at the time of inspection?				
A. Does the air pressure maintained appear to be at proper setting for system? If applicable				
B. Have all known drum drip/low point drain been drained and inspected during the inspection?				

Deluge Valve Inspection



Date:

Job Number:

Explanation of any answers that may present a problem or impair the system (comments from the inspector).

Large empty rectangular box for providing detailed explanations or comments.



Date:

job number:

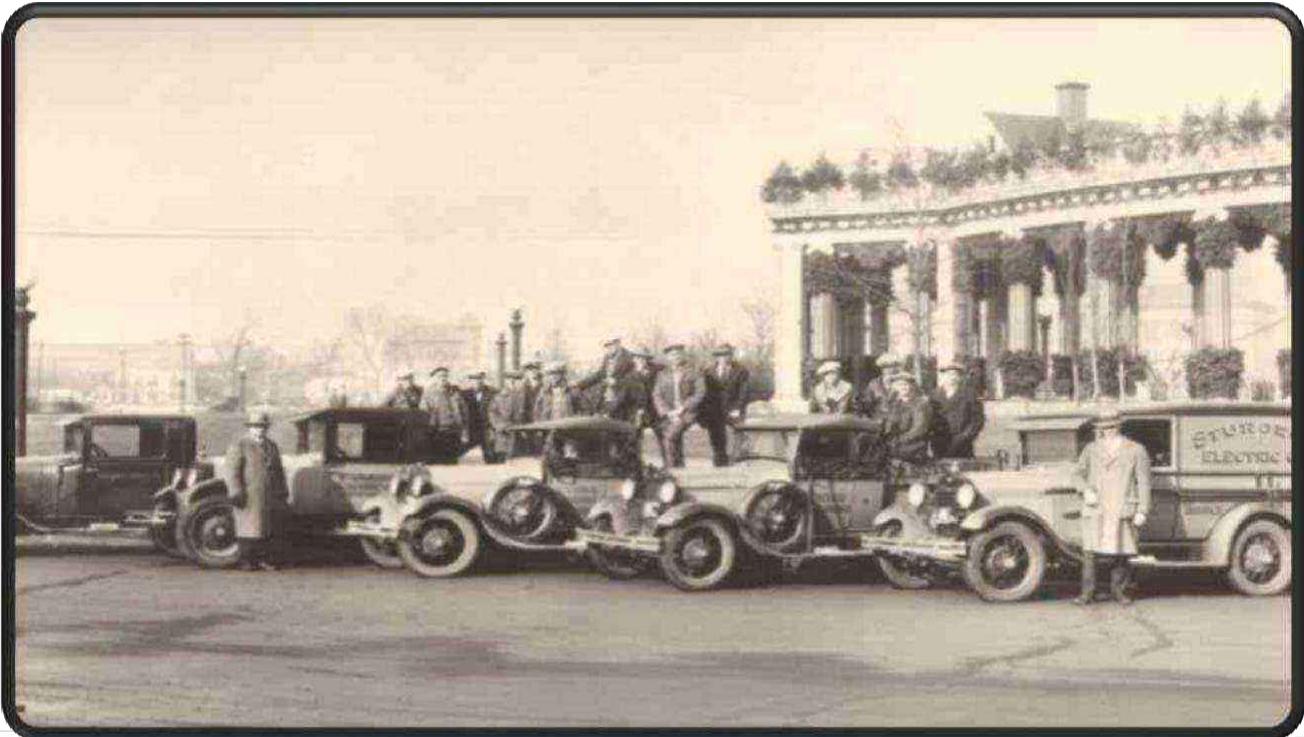
Electric Fire Pump Inspection

<b>Electric Pump Information</b>	
A. Manufacturer	
B. Serial Number	
C. Location of pump	
D. Horizontal or vertical	
E. Model / Type	
F. Impellor size	
G. Rated GPM	
H. 150% GPM	
I. RPM	
J. Rated PSI	
K. Rated PSI at 150psi	
L. Max Rated PSI	
M. Suction from city or tank	
N. Tank size	
O. Tank Height, feet	
<b>Electric Pump Driver</b>	
A. Manufacturer	
B. Serial Number	
C. Model / Type	
<b>Electric Pump Controller</b>	
A. Manufacturer	
B. Serial Number	
C. Model / Type	
<b>Before Test</b>	
A. Did the pump start by reducing pressure in the pump controller pressure sensing line?	
B. Was pump shaft checked for proper rotation?	
C. Does the pressure downstream of pump pressure relief valve if applicable appear to be in accordance with sprinkler system components (typically 175psi) pressure rating at time of inspection?	
D. If there is a reservoir does it appear to have an adequate level of water to perform the test?	
E. Does there appear to be adequate heat in the pump room to maintain a minimum temperature of 40°F at all times?	
F. Are pump suction, discharge and by-pass valves (if provided) equipped with either (Tamper, Supervision or Valve seal)?	
G. Record the pressure sensing line pressure (psi) when the pump started.	
<b>During the inspection / Test</b>	
A. Was pump operated 30 minutes?	
B. Are pump suction, discharge and by-pass control valves if provided fully open?	
C. With pump running is there a slight discharge of water from both pump packing glands? (1 drip per second)	
D. Does the pump casing appear to maintain an acceptable temperature during the test?	
E. Under churn (no flow conditions) test condition does circulation relief valve appear operate and discharge enough water?	
F. Is the pump free from any unusual noise or vibration when running?	
G. assuming the listed components are listed for 175psi and churn pressure exceeds 175psi?	
<b>Controller</b>	
A. Does controller indicate that it has power?	
B. If a transfer switch is present was it tested?	
C. If a transfer switch is present, was a powerdrop situation quardinated with the owner?	
D. If applicable did all fire pump enunciation conditions and supervisory sensors to operate when tested?	
<b>Pressure Records (Jockey Pump)</b>	
A. Record the pressure (psi) when the Jockey pump started	
B. Record the pressure (psi) when the Jockey pump stopped	
<b>Pressure Records (Fire Pump)</b>	
A. Record the pressure (psi) when the Fire pump started	
B. Record the stop pressure (psi) (switch settings inside of the controller)	
<b>Pump Churn</b>	
A. Were churn (no flow conditions) test conditions maintained for 10 minutes?	
B. Record pressure (psi) shown on the Suction side pressure gauge.	
C. Record pressure (psi) shown on the Discharge side pressure gauge.	
<b>Comment</b>	

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## 4.0 ELECTRICAL

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**SHORT TERM OPERATIONS PLAN/ANNUAL MAINTENANCE  
PLAN  
ELECTRICAL**

PREPARED BY: **JASON WILLIS**  
CELL PHONE: **(303) 944-1190**  
FAX: **(303) 227-6978**  
OFFICE: **(303)-853-7651**  
EMAIL: **JWillis@myrgroup.com**



*\* Respect \* Integrity \* Responsiveness \*  
\* Creativity \* Initiative \* Team Work \* Safety \**

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan

**GENERAL DESCRIPTION OF CONTRACTOR'S APPROACH TO MAINTENANCE OF THE PROJECT:**

Sturgeon Electric employs several hundred licensed electricians who are capable of providing maintenance for the systems we are installing on this project. Because of this Sturgeon will consistently have trained and qualified electricians, with the necessary technical competence, available to service and maintain the new electrical system.

While the systems we are providing are designed to last with little to no maintenance for over thirty years, Sturgeon will provide for annual inspections and, if needed, repairs of the electrical system by licensed electricians to ensure that what we are providing with this project will continue to function properly. The maintenance will include visual inspections as well as voltage and amperage testing. Sturgeon will inspect the newly provided gear, the conduit and wire, the Fiber Optic Linear Heat Detection System (FOLDH) Hanger and the roadway camera installation.

**MAINTENANCE SCOPE AND SCHEDULE FOR ALL EQUIPMENT INSTALLED AS PART OF THE PROJECT:**

Once a year Sturgeon will have a licensed electrician visit the tunnel to inspect the relevant systems.

The newly provided gear including the panels, the transformers, and the safety switches will be inspected visually once a year. The electrician will first ensure that all connections within the gear are tight and secure. If any connections are loose they will be tightened via torque wrench to the manufactures specifications. Additionally, the electrician will ensure that the gear is dry and clean. Humidity and condensation, as well as dirt and dust, can cause issues of corrosion and may create a potential fire hazard. Therefore, our electrician will look for any condensation and eliminate the cause. Additionally, he will also wipe down the gear if needed to keep it as clean as possible. Finally, the electrician will test the voltage and amperage of the gear to ensure that it is operating within normal parameters.

To inspect the transformers the electrician will first de-energize it. Then they will check for any accumulation of dust or dirt on the terminations or vents and will clean them if necessary. The electrician will then inspect the insulators, terminals and terminal boards for tracking, breaks, cracks, or burns. They will clean/repair if necessary. The electrician will check terminal quality and connections, including taps, for tightness. They will inspect ground connections and ground contact surfaces.

Next the electrician will inspect the conduit and wire system via visual investigation. From electrical gear to the control room the electrician will trace the conduit system to ensure that all supports are in place and that no damage has occurred. The electrician will then go into each plenum and inspect the conduit installed along the wall to ensure that it is properly secured.

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan

While in the plenum the electrician will inspect the 500va transformers and associated fuses servicing the Fire Protection Cabinets and Remote Control Cabinets. Using a multimeter the electrician will test the continuity of the fuses and replace them if needed.

The electrician will complete the maintenance by visually inspecting the FOLHD hanger system that is installed on the ceiling of the tunnel. He will walk along the tunnel walkway and investigate to ensure that the hanger is still secured to the ceiling. While in the walkway the electrician will also inspect the CCTV cameras to ensure they are secured to the tunnel wall and that the conduit is secured to the camera.

**STRATEGY FOR SOURCING SPARE PARTS, TOOLS AND CONSUMABLES**

Sturgeon utilizes local suppliers for all parts used on this project. Consolidated Electrical Distributors (CED) is the supplier who provides the Eaton gear for this project. They maintain a large supply of the replaceable items related to the gear including circuit breakers, safety switches, and transformers. Additionally the 500va transformer fuses are available from Crum electrical supply.

All other material is of standard use in our industry and is readily available from local suppliers throughout Colorado. The suppliers includes, but are not limited to: Consolidated Electrical Distributors; Graybar; Gexpro; Crum; Wesco; Cooper State; Fastenal; and QED. Sturgeon has an ongoing relationship with all of these suppliers which will allow for fast response times when needed.

**WARRANTIES**

Sturgeon provides a five year warranty for all equipment it supplies for this project as required under the contract. Extended warranties from the manufacturer of the equipment have been purchased where available.

**STAFF ORGANIZATION CHART AND STAFFING PLAN:**

Jeff Waneka- President, Commercial and Industrial- Henderson, CO

Don Eagan- Vice President

Licensed Electrician

Francis Marcotte- Operations Manger- Henderson, Colorado

Licensed Electrician

Jason Willis- Project Manager- Henderson, Colorado

Master Electrician

Nate Ziemer- Foreman- Henderson, Colorado

Licensed Electrician

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan

Matt McMahon- Superintendent- Henderson, Colorado

Licensed Electrician

Tyler Clark- Project Engineer- Henderson, Colorado

**SUBCONTRACTORS EMPLOYED:**

Sturgeon has required Cummins Rocky Mountain to provide five years of maintenance as part of the cost of their generator. Cummins will annually inspect the 350kva Natural Gas Generator to ensure it is in proper working order. They will test the generator and replace items such as the oil and coolant according to their maintenance schedule.

**STRATEGY FOR RESPONDING TO FAULT CONDITIONS**

Sturgeon Electric will provide emergency response as part of this project on an as needed basis. Our main office number is 303-286-8000. Jason Willis or Nate Ziemer can be reached through this main number and, once contacted, they can assist the client in determining what kind of “fault condition” exists and what is an appropriate response. If needed, Sturgeon will dispatch a trained service electrician to the tunnel to respond to the client’s needs as soon as possible.

Our service electricians each maintain their own material van which contains equipment and material needed to facilitate repairs. In the event that a special item or material is needed our electricians have access to the material supply we keep at our facility in Henderson, CO and can obtain whatever material they need from our numerous suppliers.

**APPROACH TO PERFORMING ANNUAL SYSTEMS TEST**

The electrical system for this project is self sufficient and does not require testing on an annual basis. However, as part of the five year maintenance for this project our electricians will perform basic testing to ensure that the electrical system is operating as intended.

Once a year an electrician will test the electrical equipment installed under this project by use of a multi meter. First, they will test the voltage and amperage of the breakers in the new panels using a multimeter. If the tests show the breakers to be failing or working improperly they will be replaced. The same process will be followed for the 500va transformer fuses in the FPC/RCP panels. The fuses will be replaced as needed.

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan

**SAFETY MANUAL**

Sturgeon has provided its standard safety manual as an attachment to this STOP plan.

**FIRST YEAR ANNUAL MAINTENANCE PLAN**

Sturgeon has provided its AMP as a separate attachment to this STOP plan.



Eisenhower- Johnson Memorial Tunnel Fixed Fire Suppression System  
Annual Maintenance Plan

The electrical gear, the conduit system, and Fiber Optic Linear Heat Detection Hanger installed at the EJMT are intended to operate with virtually no maintenance. However, there are inspections that can be conducted on an annual basis to ensure that no issues arise.

**Electrical Gear- Panel Boards**

Expected Date of Inspection: 12 Months after final acceptance

Location: East and West end electrical rooms

Time: A time agreed upon by CDOT and Sturgeon personnel

Duration: 30 Minutes- 1Hour per electrical room, plus traveling time

- The electrician shall first ensure that all connections within the gear are tight and secure. If any connections are loose they will be tightened via torque wrench to the manufactures specifications.
- The electrician shall look to ensure that the gear is dry and clean. Humidity and condensation, as well as dirt and dust, can cause issues of corrosion and may create a potential fire hazard. Therefore, our electrician will look for any condensation and eliminate the cause. Additionally, he will also wipe down the gear if needed to keep it as clean as possible.
- The electrician shall test the voltage and amperage of the gear to ensure that it is operating within normal parameters.

**Electrical Gear- Transformers**

Expected Date of Inspection: 12 Months after final acceptance

Location: West end electrical rooms

Time: A time agreed upon by CDOT and Sturgeon personnel

Duration: 30 Minutes-1 HR

- To begin inspection and maintenance of the transformer the electrician will first de-energize it.
- The electrician will check for any accumulation of dust or dirt on the terminations or vents and will clean them if necessary.
- The electrician will then inspect the insulators, terminals and terminal boards for tracking, breaks, cracks, or burns. They will clean/repair if necessary.
- The electrician will check terminal quality and connections, including taps, for tightness.
- They will inspect ground connections and ground contact surfaces.



### **Conduit and Wire System**

Expected Date of Inspection: 12 Months after final acceptance

Location: Plenums of both Eisenhower and Johnson Tunnels

Time: A time agreed upon by CDOT and Sturgeon personnel

Duration: One hour per Plenum (Four hours)

- The electrician will inspect the conduit and wire system via visual investigation.
- From electrical gear to the control room the electrician will trace the conduit system to ensure that all supports are in place and that no damage has occurred.
- The electrician will then go into each plenum and inspect the conduit installed along the wall to ensure that it is properly secured.

### **FPC/RCP Transformers**

Expected Date of Inspection: 12 Months after final acceptance

Location: Plenums of both Eisenhower and Johnson Tunnels

Time: A time agreed upon by CDOT and Sturgeon personnel

Duration: One hour per Plenum (Four hours) (To be conducted with wire and conduit inspection)

- While in the plenum the electrician will inspect the 500va transformers and associated fuses servicing the Fire Protection Cabinets and Remote Control Cabinets.
- Using a multimeter the electrician will test the continuity of the fuses and replace them if needed.

### **FOLHD Hanger and CCTV Installation**

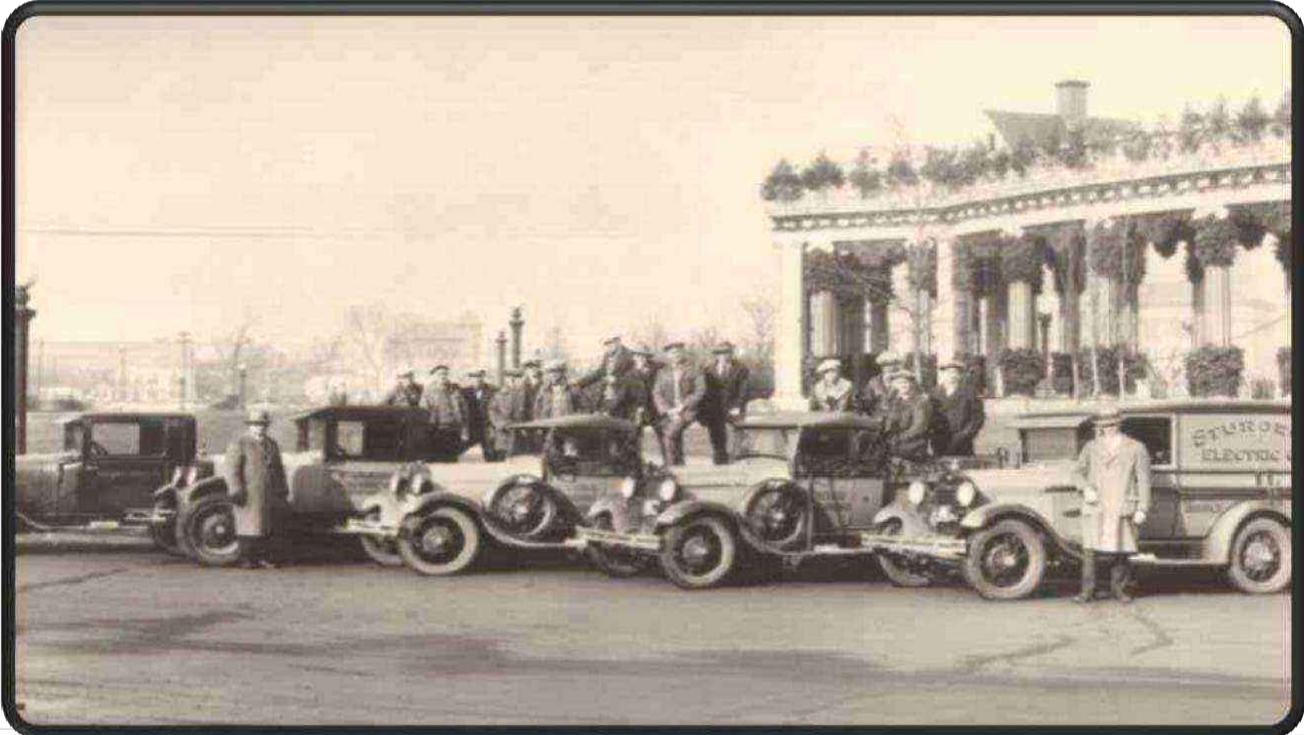
Expected Date of Inspection: 12 Months after final acceptance

Location: Walkways of Eisenhower and Johnson Tunnels

Time: A time agreed upon by CDOT and Sturgeon personnel

Duration: One hour per Tunnel

- The electrician will walk along the tunnel walkway and investigate to ensure that the hanger is still secured to the ceiling.
- While in the walkway the electrician will also inspect the CCTV cameras to ensure they are secured to the tunnel wall and that the conduit is secured to the camera.



**SHORT TERM OPERATIONS PLAN/ANNUAL MAINTENANCE  
PLAN**

**GENERATOR**

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PREPARED BY: **JASON WILLIS**  
CELL PHONE: **(303) 944-1190**  
FAX: **(303) 227-6978**  
OFFICE: **(303)-853-7651**  
EMAIL: **JWillis@myrgroup.com**



*\* Respect \* Integrity \* Responsiveness \*  
\* Creativity \* Initiative \* Team Work \* Safety \**

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan  
350 kW Natural Gas Generator

**GENERAL DESCRIPTION OF CONTRACTOR'S APPROACH TO MAINTENANCE OF THE PROJECT:**

Cummins recommends that for standby generator sets, such as the 350 kw Natrual Gas generator, the minimum service from factory trained technicians occurs semi-annually. We have 30+ technicians, all factory trained, and training is continuous. We evaluate the type of service or repair and send the most appropriate technician for the job. We have 14+ technicians dedicated to preventive maintenance. The industry standard for maintenance on non-life safety gensets is typically a service frequency of every six months.

**MAINTENANCE SCOPE AND SCHEDULE FOR ALL EQUIPMENT INSTALLED AS PART OF THE PROJECT:**

Below is a check list of the service items. Everything is checked at each visit, the oil and filters are usually changed annually, or every 250 hours of run time whichever comes first. Transfer testing to available connected load is strongly recommended at each scheduled service event.

Engine Details: Fuel Filters; Hoses And Fittings; Fuel Strainers; Fuel Level; Fuel Sample; Low Fuel Alarm; Rupture Basin Alarm.

Engine Intake And Exhaust: Air Cleaner; Hoses; Muffler Condition; Wet Stacking; Condensation Trap; Exhaust Leaks.

Engine Lube System: Oil Level; Oil Filters; Oil Sample; Oil Leaks.

Engine Cooling System: Coolant Level; Hydrometer Test; DCA Concentration; Fan Belt Condition; Radiator Condition; Hose Condition; Coolant Sample; Louver Operation; Coolant Heater.

Engine Electrical System: Hydrometer Test Avg; Battery Age; Battery Charger VDC; Battery Condition Cable; Battery Load Test; Battery Post; Visually Inspect Wiring.

Ignition System: Ignition Wires; Spark Plugs; Points; Condenser; Distribution Cap; Rotor.

Control Panel: AC voltage L-L; Frequency (Hz); Amps L1, Amps L2; Amps L3; Wiring and Relays; Check Lamps; Coolant Temperature; Oil Pressure; Battery Meter Reading.

Transfer Switch: Transfer Test; Visually Inspect Wiring; Start Delay; AC Voltage L-L (Utility); Frequency (Hz) (Utility); Amps L1; Amps L2; Amps L3; AC Voltage L-L (Gen); Frequency (Hz) (Gen); Retransfer Delay; Cool Down Delay; Exercise Clock Setting.

**STRATEGY FOR SOURCING SPARE PARTS, TOOLS AND CONSUMABLES**

Cummins Rocky Mountain and Cummins Inc maintain a local, regional, national and international parts warehousing and distribution chain. Cummins Rocky Mountain (as the distribution unit for Cummins Inc in the area for the subject project) stocks parts at each of its branch facilities. For the subject project we have branches located in Henderson (Denver) and Grand Junction. Additional

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan  
350 kW Natural Gas Generator

branches are located throughout the Cummins Rocky Mountain territory. A map of the territory can be seen at; [www.cumminsrockymountain.com](http://www.cumminsrockymountain.com)

Parts sourcing (including overnight, emergency or expedited basis) through Cummins Inc parts depots, factory sources and other Cummins distribution units, is handled through a linked international sourcing methodology to support owner units.

Our supplier of oil is Offen Petroleum, as the local supplier for the North American Cummins/Valvoline distribution arrangement for quality and specification maintenance. Filters and other consumables are Cummins/Fleetguard to comply with OEM specifications.

### **WARRANTIES**

For the Eisenhower/Johnson Tunnel Genset, the warranty is Two Years/ 400 Hours. (This does not include preventative maintenance.) Please refer to the Cummins Warranty Documents included in the submittal packages and with the O&M manuals.

### **STAFF ORGANIZATION CHART AND STAFFING PLAN:**

A key personnel list with phone numbers and relative positions will be provided along with the maintenance proposal when the scope and timing of PM work has been determined. Most of the staff will be dispatched out of the Henderson, CO location. We have additional locations in Grand Junction and Colorado Springs and will utilize staff from those facilities to meet your maintenance, call out or emergency service requests.

### **SUBCONTRACTORS EMPLOYED:**

- NA

### **STRATEGY FOR RESPONDING TO FAULT CONDITIONS**

We will dispatch within four hours of an emergency call out, (subject to conditions) unless another arrangement is made, such as scheduling a routine repair. We have a 24/7 call out service coverage. Key contact numbers and personnel lists will be provided on completion of commissioning and PM Agreement.

### **APPROACH TO PERFORMING ANNUAL SYSTEMS TEST**

We can tailor the scheduled PM services to your specific needs and requirements including regulatory requirements. We recommend that transfer testing is performed during each service. In addition to periodic transfer testing we recommend that the unit is run under no less than 30% rated site load monthly for a minimum of 30 minutes. This is typically done by your onsite staff, however, we can arrange to be onsite monthly to perform this test if you so choose.

Eisenhower/Johnson Memorial Tunnel Fixed Fire Suppression Project  
Short Term Operation Plan  
350 kW Natural Gas Generator

**SAFETY MANUAL**

Safety procedures are included in the O&M Manuals

**FIRST YEAR ANNUAL MAINTENANCE PLAN**

This again will be tailored to your specific needs and requests. We will put together a scheduled maintenance proposal once the scope of work is determined for your specific application and comfort levels.



## Section 5 - Maintenance

Engine and Generator set are to be operated in accordance with all manufacture's guidelines and recommendations.

Establish and adhere to a definite schedule for maintenance and service based on the application and severity of the environment. The recommended service intervals for a generator set on STANDBY power service is covered in [Table 5-1](#) and for PRIME power service [Table 5-2](#). If the set will be subjected to extreme operating conditions, the service intervals should be reduced accordingly. Some of the factors that can affect the maintenance schedule are the following:

- Extremes in ambient temperature
- Exposure to weather
- Exposure to salt water
- Exposure to dust, sand, or other airborne contaminants

Consult with your local Authorized Cummins Distributor if the generator set will be subjected to any extreme operating conditions and determine a suitable schedule of maintenance. Use the running time meter to keep an accurate log of all service performed for warranty support. Perform all service at the time period indicated or after the number of operating hours indicated, whichever comes first. Use [Table 5-1](#) (Standby) or [Table 5-2](#). (Prime) to determine the maintenance required and then refer to the sections that follow for the correct service procedures.

### 5.1 Owner/Operator Unit Compliance

Owner/Operator unit engine certification must be monitored and documented to remain in compliance with the EPA. Reference to the EPA SI NSPS final ruling can be found under Title 40 CFR 60.4243.

**NOTE:** For complete information, the owner/operator should review entire Code of Federal Regulation.

In general, the guidelines are as follows:

#### 5.1.1 Base Drains (Optional)

Some units are equipped with drain extensions that allow for oil or coolant (or both) drains to be brought out to the base edge for convenient maintenance. These drains have an in-line ball valve or Fumoto valve installed for control. Remove the cap and open the valve to drain. Close the valve and restore the cap before refilling. Maintenance – Check end of drain line/valve for obstructions. Check all connections for leaks or worn parts.

**5.1.2** If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator.

**5.1.3** If you Do Not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to 5.1.2.1 through 5.1.2.3 of this section, as appropriate.

**5.1.3.1** If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

**5.1.3.2** If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct and initial

performance test with a manner demonstrate compliance.

**5.1.3.3** If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to extent practica-

consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct and initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

**Table 5-1 Periodic Maintenance Schedule For Standby Power Gensets**

MAINTENANCE ITEMS	SERVICE TIME						
	*After First 24 Hours or 1 Year	Daily or after 8 Hours	*Monthly or after 100 Hours	After 150 Hours	*6 Months or after 250 Hours	*Yearly or after 500 Hours	After 1000 Hours
General set inspection		X <sup>1</sup>					
Oil pan heater		X					
Check engine oil level and reservoir (optional)		X					
Check coolant level		X					
Check coolant heater(s)		X					
Fuel heater		X					
Battery heater		X					
Control heater		X					
Breather heater		X					
Check air cleaner			X <sup>2,3</sup>				
Check all hardware (fittings, clamps, fasteners, etc.)			X				
Check battery electrolyte level			X				
Check generator air outlet			X				
Change engine oil and filter	X			X <sup>2,8</sup>			
Check radiator hoses for wear and cracks					X <sup>4</sup>		
Check drive belt					X <sup>5</sup>		
Check antifreeze concentration					X		
Check AC generator and controls					X <sup>7</sup>		
Clean cooling systems						X	
Replace spark plugs						X <sup>6</sup>	
Inspect or replace oxygen sensor						X <sup>7,9</sup>	
Overhaul cylinder heads							X
Periodic Emissions Testing							X <sup>10</sup>

MAINTENANCE ITEMS	SERVICE TIME						
	*After First 24 Hours or 1 Year	Daily or after 8 Hours	*Monthly or after 100 Hours	After 150 Hours	*6 Months or after 250 Hours	*Yearly or after 500 Hours	After 1000 Hours
<p>X<sup>1</sup> - Check for oil, fuel, cooling, and exhaust system leaks. Check exhaust system audibly and visually with set running and repair any leaks immediately.</p> <p>X<sup>2</sup> - Perform more often in extremely dusty conditions.</p> <p>X<sup>3</sup> - Replace element after 500 hours.</p> <p>X<sup>4</sup> - Replace if hard or brittle.</p> <p>X<sup>5</sup> - Visually check belt for evidence of warping or slippage. Replace if hard or brittle.</p> <p>X<sup>6</sup> - Replace every 1000 hours.</p> <p>X<sup>7</sup> - Must be performed by a qualified mechanic. Contact your authorized service center.</p> <p>X<sup>8</sup> - Perform at least once a year.</p> <p>X<sup>9</sup> - Replace every 1500 hours (recommended).</p> <p>X<sup>10</sup> - Retesting onsite is required on capable compliant generator sets per local, regional and national codes.</p> <p>*Whichever comes first.</p>							

**Table 5-1 Periodic Maintenance Schedule For Standby Power Gensets**

**Table 5-2. Periodic Maintenance Schedule For Prime Power Gensets**

MAINTENANCE ITEMS	SERVICE TIME					
	After First 24 Hours	24 Hours	100 Hours	250 Hours	500 Hours	1000 Hours
General set inspection		X <sup>1</sup>				
Oil pan heater		X				
Check fuel		X				X
Check battery		X				X
Check control		X				X
Check breather heater		X				X
Check engine oil level and reservoir (optional)		X				
Check coolant level		X				
Check coolant heater(s)		X				
Check air cleaner (heavy duty filter)			X <sup>2,3</sup>			
Check all hardware (fittings, clamps, fasteners, etc.)				X		
Check battery electrolyte level				X		
Check generator air outlet				X		
Change engine oil and filter	X			X <sup>2</sup>		
Check fuel filter element	X			X <sup>2</sup>		
Check radiator hoses for wear and cracks					X <sup>4</sup>	
Check drive belt					X <sup>5</sup>	
Check antifreeze concentration				X		
Check AC generator and controls					X <sup>6</sup>	
Clean cooling systems					X	
Replace spark plugs						X <sup>3</sup>
Inspect or replace oxygen sensor					X <sup>6,8</sup>	
Overhaul cylinder heads						X
Periodic Emissions Testing						X <sup>9</sup>

MAINTENANCE ITEMS	SERVICE TIME					
	After First 24 Hours	24 Hours	100 Hours	250 Hours	500 Hours	1000 Hours
<p>X<sup>1</sup> - Check for oil, fuel, cooling, and exhaust system leaks. Check exhaust system audibly and visually with set running and repair any leaks immediately.</p> <p>X<sup>2</sup> - Perform more often in extremely dusty conditions.</p> <p>X<sup>3</sup> - Replace every 2000 hours.</p> <p>X<sup>4</sup> - Replace if hard or brittle.</p> <p>X<sup>5</sup> - Visually check belt for evidence of warping or slippage. Replace if hard or brittle.</p> <p>X<sup>6</sup> - Must be performed by a qualified mechanic. Contact your authorized service center.</p> <p>X<sup>7</sup> - Replace every 1000 hours.</p> <p>X<sup>8</sup> - Replace every 1500 hours (recommended)</p> <p>X<sup>9</sup> - Retesting onsite is required on capable compliant generator sets per local, regional and national codes.</p>						

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project
Rev. 3	SHORT-TERM OPERATIONS PLAN

## 5.0 MECHANICAL

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Braconier's approach to effective preventative maintenance is to achieve the following four key goals:

1. Help buildings and equipment function as they were intended and operate at peak efficiency, including minimizing energy consumption. Because preventive maintenance keeps equipment functioning as designed, it reduces inefficiencies in operations and energy usage.
2. Prevent failures of building systems that would interrupt occupants' activities and the delivery of services. Because preventive maintenance includes regular inspections and replacement of equipment crucial to operating a building, we reduce the problems that might otherwise lead to a breakdown in operations.
3. Sustain a safe and healthful environment by keeping buildings and their components in good repair and physically sound. Protecting the physical integrity of building components through preventive maintenance preserves a safe environment for employees and the public.
4. Provide maintenance in ways that are cost-effective. Preventive maintenance can prevent minor problems from escalating into major system and equipment failures that result in costly repairs. In avoiding costs of major repairs, preventive maintenance creates efficiencies. Increasing preventive maintenance can reduce time spent reacting to crises, which is a more cost-effective way to operate buildings. Deferring preventive maintenance can generate higher costs over the long term.

**Maintenance Scope and Schedule:**

- Boilers: Lochinvar Model CHN1442 Maintenance Schedule and Procedures (attached)
- Pumps: Grundfos CR64-1 Maintenance Schedule and Procedures (attached)

**Warranties on Equipment:**

- Boilers: Lochinvar Model CHN1442 Warranty Terms and Conditions Letter (attached)
- Pumps: Grundfos CR64-1 Warranty Terms and Conditions Letter (attached)

**Strategy for sourcing parts, tools, and consumables:**

- Braconier will provide spare parts and consumables upon startup of the project, and replace them as necessary upon use.

Annual system tests will be performed in accordance with the manufacturer's recommendations.

## **Strategy for Responding to Fault Conditions**

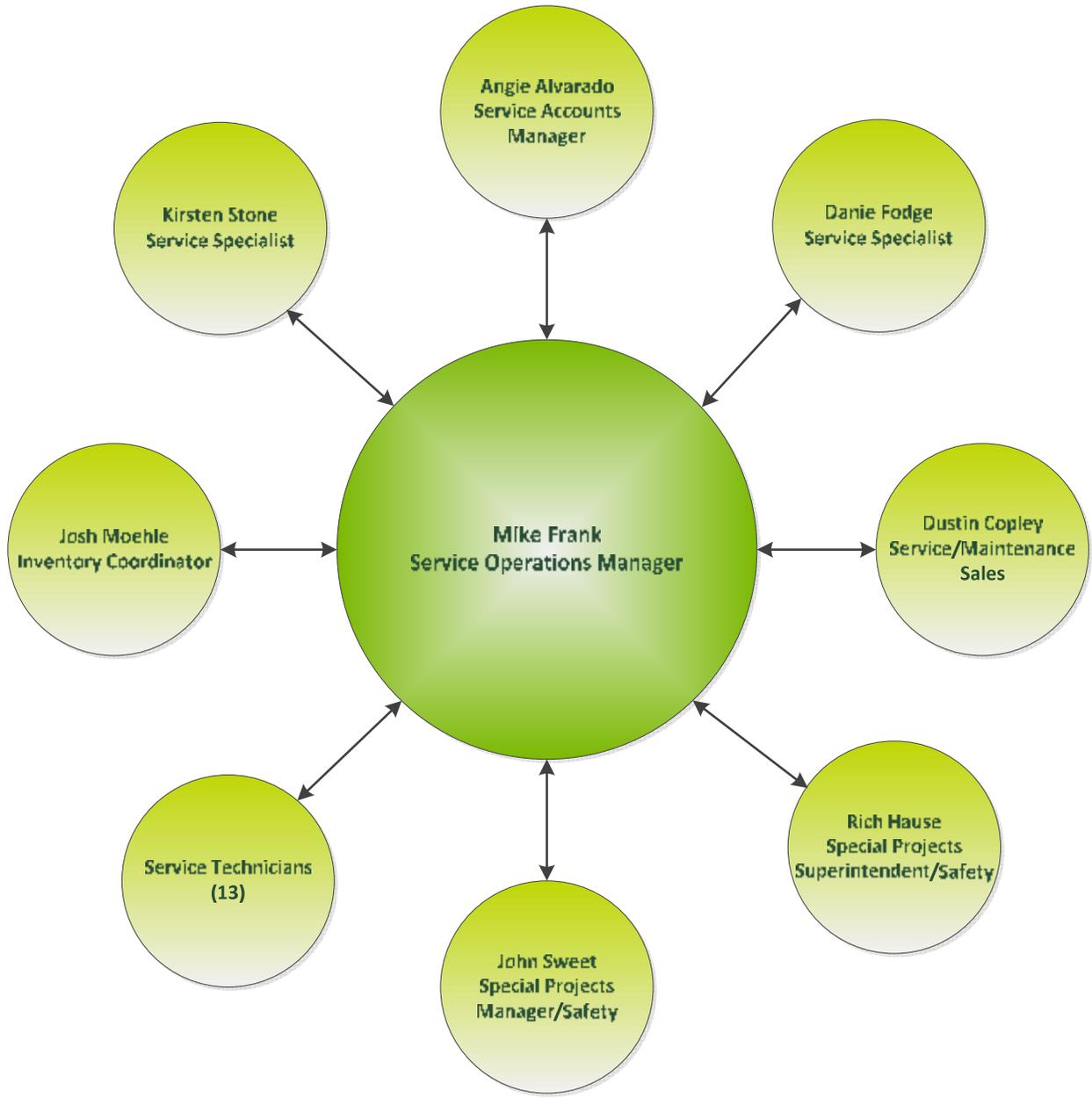
Braconier Plumbing and Heating will provide emergency response as part of this project on an as needed basis. We have a 24/7 Emergency Response service phone number, which is included in the list of Emergency Contacts, provided separately. Our Emergency Response service phone number is 303-777-3037.

We have identified one Scott Schultz, Braconier boiler service technician, as the primary service representative for calls on this project. Scott is familiar with the startup, commissioning, and has contact information for the manufacturer, Tigerflow. As determined by Scott, either himself or a separate trained service technician will be dispatched under his supervision to respond to fault conditions that cannot be easily corrected remotely. Our boiler service technicians each have their own stocked service vans containing the equipment most commonly required for boiler system repairs. If they do not have the specific items on their van, then provisions will be made to procure the parts 1) locally, and 2) if not available locally, then through the boiler manufacturer's regional sales representative.

Braconier will gather specific information regarding any faults from CDOT prior to departure to the tunnel, including who to contact upon arrival at the site.

An Emergency Failure (loss of boiler heating) will be responded to immediately with a response time of 4 hours or less.

For faults that generate a site visit and repair, detailed service/work tickets will be maintained for record keeping.





COPPER-FIN II MAINTENANCE & SAFETY INSPECTION REPORT



DATE	Check for leaks in gas/water lines	Check combustion air openings	Check air filter and replace as needed	Check all wiring and connections	Check and clean fans	Inspect and clean HEX if needed	Inspect and clean burners if needed	Inspect HEX waterways	Check burner flame patterns			
Recommended Inspection Intervals	Monthly	Monthly	Monthly	Every Six Months	Every Six Months	Annually	Annually	Annually	Annually			

MODEL # \_\_\_\_\_ SERIAL# \_\_\_\_\_ DATE UNIT INSTALLED \_\_\_\_\_

FOR TECH QUESTIONS WWW.LOCHINVAR.COM OR CALL TECH 1-800-722-2101

FOR DETAILED INSTRUCTIONS SEE I & O MANUAL

## 2 Maintenance

### Maintenance and annual startup

**Table 2A\_ Service and Maintenance Schedules**

Service technician (see the following pages for instructions)		Owner maintenance (see the User's Information Manual for instructions)	
<b>ANNUAL START-UP</b>	<b>General:</b>		<ul style="list-style-type: none"> <li>• Check appliance area</li> <li>• Check pressure/temperature gauge</li> </ul>
	<ul style="list-style-type: none"> <li>• Address reported problems</li> <li>• Inspect interior; clean and vacuum if necessary;</li> <li>• Check for leaks (water, gas, flue, condensate)</li> <li>• Examine venting system</li> <li>• Check system water pressure/system piping/expansion tank</li> <li>• Check control settings</li> <li>• Check igniters</li> <li>• Check wiring and connections</li> <li>• Check flue gas passageways</li> <li>• Flame inspection (stable, uniform)</li> <li>• Inspect and clean the burners</li> <li>• Check manifold gas pressures</li> <li>• Perform start-up checkout and performance verification per the Startup Section in the Installation and Operation Manual.</li> </ul>		<ul style="list-style-type: none"> <li>• Check vent piping</li> <li>• Check air piping</li> <li>• Check relief valve</li> <li>• Replace combustion air filter</li> </ul> <p><b>Note:</b> More frequent replacement may be necessary in dirty environments. Do not use pleated filters.</p>
	<b>If combustion or performance indicate need:</b>		<ul style="list-style-type: none"> <li>• Test low water cutoff (if used)</li> <li>• Reset button (low water cutoff)</li> </ul>
	<ul style="list-style-type: none"> <li>• Clean heat exchanger with a stiff bristle brush</li> <li>• Remove and clean burners using water. Dry before re-assembling.</li> <li>• Clean the blower wheel with a brush and vacuum. Do not let dirt from cleaning get pulled into the blower.</li> </ul>		<ul style="list-style-type: none"> <li>• Check appliance piping (gas and water) for leaks</li> <li>• Operate relief valve</li> </ul>

## 2 Maintenance

**⚠ WARNING** Follow the service and maintenance procedures given throughout this manual and in component literature shipped with the appliance. Failure to perform the service and maintenance could result in damage to the appliance or system. Failure to follow the directions in this manual and component literature could result in severe personal injury, death, or substantial property damage.

**⚠ WARNING** The appliance should be inspected annually only by a qualified service technician. In addition, the maintenance and care of the appliance designated in Table 2A and explained on the following pages must be performed to assure maximum appliance efficiency and reliability. Failure to service and maintain the appliance and system could result in equipment failure.

**⚠ WARNING** Electrical shock hazard – Turn off power to the appliance before any service operation on the appliance except as noted otherwise in this instruction manual. Failure to turn off electrical power could result in electrical shock, causing severe personal injury or death.

### Address reported problems

1. Inspect any problems reported by the owner and correct before proceeding.

### Inspect appliance area

1. Verify that appliance area is free of any combustible materials, gasoline and other flammable vapors and liquids.

### Inspect appliance interior

1. Remove the outer access panels and inspect the interior of the appliance.
2. Vacuum any sediment from inside the appliance and components. Remove any obstructions.

### Check all piping for leaks

**⚠ WARNING** Eliminate all system or appliance leaks. Continual fresh makeup water will reduce appliance life. Minerals can build up in sections, reducing heat transfer, overheating heat exchanger, and causing heat exchanger failure. Leaking water may also cause severe property damage.

1. Inspect all water and gas piping and verify to be leak free.
2. Look for signs of leaking lines and correct any problems found.
3. Check gas line using the procedure found in the *Gas Connections* of the Installation and Operation Manual.

### Flue vent system and air piping

1. Check for gastight seal at every connection, seam of air piping, and vent piping periodically inspected by a qualified service agency.

**⚠ WARNING** Venting system must be sealed gastight to prevent flue gas spillage and carbon monoxide emissions, which will result in severe personal injury or death.

### Combustion air filter

This appliance has a standard air filter located at the combustion air inlet at the rear of the appliance. This filter helps ensure clean air is used for the combustion process. Check this filter every month and replace. The filter size on the 500,000 - 750,000 Btu/hr models is 12" x 12" x 1" and 16" x 16" x 1" on the 990,000 - 2,070,000 Btu/hr models. You can find these commercially available at any home center or HVAC supply store. Do not use pleated filters.

### Check water system

1. Verify all system components are correctly installed and operational.
2. Check the cold fill pressure for the system. Verify it is correct (must be a minimum of 12 PSI).
3. Watch the system pressure as the boiler heats up (during testing) to ensure pressure does not rise too high. Excessive pressure rise indicates expansion tank sizing or performance problem.
4. Inspect automatic air vents and air separators. Remove air vent caps and briefly press push valve to flush vent. Replace caps. Make sure vents do not leak. Replace any leaking vents.

### Check expansion tank (if provided)

1. Expansion tanks provide space for water to move in and out as the heating system water expands due to temperature increase or contracts as the water cools. Tanks may be open, closed, diaphragm or bladder type. See the *Water Connections Section* of the Installation and Operation Manual for suggested best location of expansion tanks and air eliminators.

## 2 Maintenance *(continued)*

### Check relief valve

1. Inspect the relief valve and lift the lever to verify flow. Before operating any relief valve, ensure that it is piped with its discharge in a safe area to avoid severe scald potential. Read the *Water Connections* Section of the Installation and Operation Manual before proceeding further.

#### **⚠ WARNING**

Safety relief valves should be re-inspected **AT LEAST ONCE EVERY THREE YEARS**, by a licensed plumbing contractor or authorized inspection agency, to ensure that the product has not been affected by corrosive water conditions and to ensure that the valve and discharge line have not been altered or tampered with illegally. Certain naturally occurring conditions may corrode the valve or its components over time, rendering the valve inoperative. Such conditions are not detectable unless the valve and its components are physically removed and inspected. This inspection must only be conducted by a plumbing contractor or authorized inspection agency – not by the owner. Failure to re-inspect the boiler relief valve as directed could result in unsafe pressure buildup, which can result in severe personal injury, death, or substantial property damage.

#### **⚠ WARNING**

Following installation, the valve lever must be operated **AT LEAST ONCE A YEAR** to ensure that waterways are clear. Certain naturally occurring mineral deposits may adhere to the valve, rendering it inoperative. When manually operating the lever, water will discharge and precautions must be taken to avoid contact with hot water and to avoid water damage. Before operating lever, check to see that a discharge line is connected to this valve directing the flow of hot water from the valve to a proper place of disposal. Otherwise severe personal injury may result. If no water flows, valve is inoperative. Shut down the appliance until a new relief valve has been installed.

2. After following the above warning directions, if the relief valve weeps or will not seat properly, replace the relief valve. Ensure that the reason for relief valve weeping is the valve and not over-pressurization of the system due to expansion tank waterlogging or undersizing.

### Inspect/replace hot surface igniter

This unit uses a proven hot surface ignition module and a hot surface igniter. The hot surface ignition module is not repairable. Any modification or repairs will invalidate the warranty.

#### **⚠ WARNING**

Do not attempt to repair a faulty hot surface igniter or ignition module. Any modification or repairs may create hazardous conditions that result in property damage, personal injury, fire, explosion and/or toxic gases.

A faulty hot surface igniter or ignition module must be replaced with an identical part. A specification igniter and ignition module for this specific unit is available from your local distributor. **Do not use general purpose field replacement ignition modules or igniters.**

### Inspect/replace hot surface igniters

1. Turn off main electrical power to the appliance.
2. Turn off main manual gas shutoff to the appliance.
3. Remove lower front door to gain access to the hot surface igniter.
4. Locate the hot surface igniter. Disconnect the two power leads to the hot surface igniter.
5. Loosen and remove the two screws used to attach the igniter.
6. Remove the igniter from the combustion chamber door. Use care, do not hit or break the silicon carbide igniter. Do not contaminate the igniter by handling with oily or dirty hands.
7. Check the replacement igniter for cracks or damage before installing.
8. Ensure that the fiber gasket used to seal the base of the igniter to the combustion chamber door is reinstalled to seal the base of the replacement igniter.
9. Carefully insert the igniter into the opening of the combustion chamber door and re-attach the two screws removed in Step 5. Over-tightening may break the ceramic mounting flange.
10. Ensure that the igniter gasket is properly installed and seals the point of contact between the igniter and the combustion chamber door.
11. Reconnect the power leads to the igniter.
12. Replace the lower front door.
13. Turn on main gas supply and main power.
14. Test fire the appliance to ensure proper operation.

## 2 Maintenance

### Check all wiring

1. Inspect all wiring, making sure wires are in good condition and securely attached.

### Check control settings

1. Set the SMART SYSTEM control module display to Parameter Mode and check all settings. See Section 1 of this manual. Adjust settings if necessary. See Section 1 of this manual for adjustment procedures.
2. Check settings of external limit controls (if any) and adjust if necessary.

### Perform start-up and checks

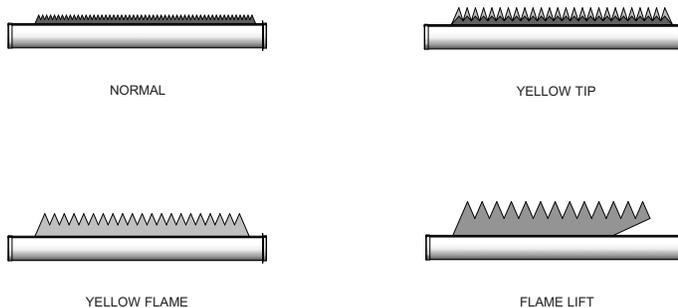
1. Start appliance and perform checks and tests specified in *Start-up Section* of the Installation and Operation Manual.
2. Verify cold fill pressure is correct and that operating pressure does not go too high.

### Check burner flame

Visually check main burner flames at each start-up after long shutdown periods or at least every six months. The burner viewports are located on either end of the appliance.

**⚠ WARNING** The area around the burner viewport is hot and direct contact could result in burns.

**Figure 2-1** Flame Pattern Illustration



**Normal Flame:** A normal flame at 100% of burner input is blue, with slight yellow tips, a well defined flame and no flame lifting.

**Yellow Tip:** Yellow tipping can be caused by blockage or partial obstruction of air flow to the burner.

**Yellow Flames:** Yellow flames can be caused by blockage of primary air flow to the burner or excessive gas input. This condition **MUST** be corrected immediately.

**Lifting Flames:** Lifting flames can be caused by over firing the burner, excessive primary air or high draft.

If improper flame is observed, examine the venting system, ensure proper gas supply and adequate supply of combustion and ventilation air.

### Check flue gas passageways

Any sign of soot around the refractory, at the burners, or in the areas between the fins on the copper heat exchanger indicates a need for cleaning. The following cleaning procedure must only be performed by a qualified serviceman or installer. Proper service is required to maintain safe operation. Properly installed and adjusted units seldom need flue cleaning.

#### NOTICE

All gaskets/sealants on disassembled components or jacket panels must be replaced with new gaskets/sealants on reassembly. Gasket and sealant kits are available from your distributor.

#### ⚠ CAUTION

When a Category IV vent system is disconnected for any reason, the flue must be reassembled and resealed according to the vent manufacturer's instructions.

### Inspect and clean burner

The burner should be removed for inspection and cleaned on an annual basis. An appliance installed in a dust or dirt contaminated environment may require cleaning of the burner on a 3 to 6 month schedule or more often, based on severity of the contamination. The fan assisted combustion process may force airborne dust and dirt contaminants, contained in the combustion air, into the burner. With sustained operation, non-combustible contaminants may reduce burner port area, reduce burner input or cause non-warrantable damage to the burners.

Use extreme care when operating an appliance for temporary heat during new construction. Airborne contaminants such as dust, dirt, concrete dust or drywall dust can be drawn into the burner with the combustion air and block the burner port area. An external combustion air filter is provided with the appliance. This filter helps ensure clean air is used for the combustion process. Check this filter every month and replace when it becomes dirty. The burner of an appliance used for temporary heat without a combustion air filter installed will probably require a thorough cleaning before the unit is placed into normal service.

## 2 Maintenance *(continued)*

### Access to the burners will require the following steps:

1. Turn off main electrical power to the appliance.
2. Turn off main manual gas shutoff to the appliance.
3. Remove the upper and lower outer front access doors.
4. Disconnect the manifold(s) from the gas train using the union(s) just below each gas valve.
5. Disconnect the wiring to the hot surface igniter(s) and ground.
6. Disconnect burner pressure line at burner.
7. Remove the screws from the manifold mounting bracket(s) and remove the manifold(s).
8. Remove the screws from the burner mounting flanges and slide the burner(s) out toward the front of the unit. Use caution to prevent damage to the burners, refractory, hot surface igniter, and wiring.
9. Remove soot from the burners with a stiff bristle brush. Dirt may be removed from the burner ports by rinsing the burner thoroughly with water. Drain and dry burners before re-installing. Damaged burners must be replaced.
10. Reassemble in reverse order.

#### NOTICE

When installed in a dusty and dirty location, the burners may require cleaning on a 3 to 6 month schedule or as needed, based on the severity of contamination. Contaminants can be drawn in with the combustion air. Non-combustible particulate matter such as dust, dirt, concrete dust, or drywall dust can block burner ports and cause non-warrantable failure. The standard inlet air filter will help eliminate dust and dirt from entering the unit.

#### NOTICE

While burners are removed, check the heat exchanger surface for sooting. If present, the heat exchanger must be cleaned. Reference the *Heat Exchanger Cleaning* procedures in this manual.

### Checking combustion air pressure

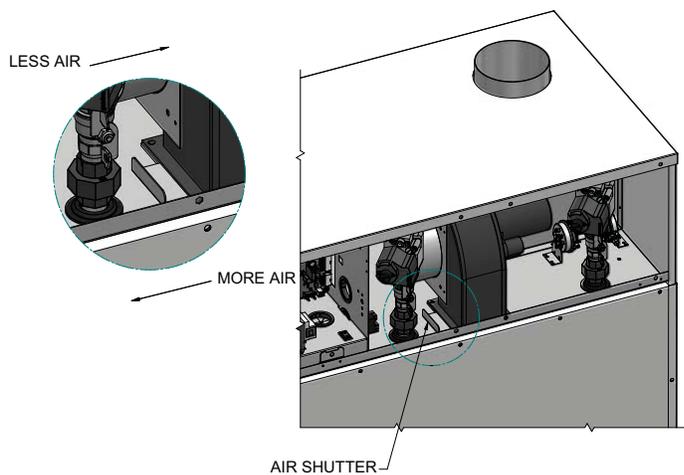
The combustion air fans are factory pre-set and should not require adjustment in most cases. Follow the steps in the *Checking / Adjusting Combustion Air Pressure* Section to adjust the fan if a continuous Low Air status code occurs.

#### NOTICE

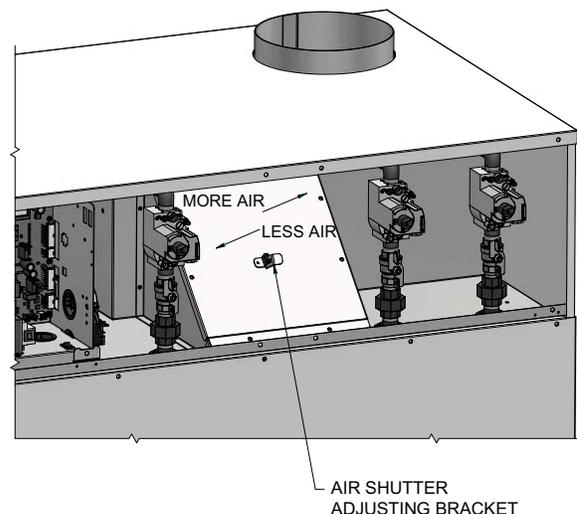
On the 399,999 - 750,000 Btu/hr models, the air shutter is adjusted to the side of the fan as depicted in FIG. 2-2. On the 990,000 - 2,070,000 Btu/hr models, the air shutter is adjusted by sliding the arm located on the front of the air box as depicted in FIG. 2-3.

Check for proper installation and draft in the venting system prior to any adjustments. Correct as needed.

**Figure 2-2** Adjusting air shutter - 399,999 - 750,000 Btu/hr Models



**Figure 2-3** Adjusting air shutter - 990,000 - 2,070,000 Btu/hr Models



## 2 Maintenance

### Adjusting combustion air pressure

The following is a recommended method for setting the combustion air pressure. The following pressure settings are for installations up to 4000 feet altitude. Contact the factory for high altitude air pressure settings.

Upon removal of the upper front doors, locate the capped tee in the pressure tubing that connects between the inner top and the gas valves. Remove this cap and connect a hose from the tee to a manometer.

#### For 399,999 - 750,000 Btu/hr models (reference FIG. 2-2)

1. The combustion air chamber pressure for these models is typically 1.2 - 1.3 inches water column when the fan is at high speed.
2. If adjustment is necessary, slightly loosen the nuts connecting the fan to the inner top.
3. Adjust the air shutter located underneath the fan assembly to obtain the desired chamber pressure. Slide the shutter inward to decrease the chamber pressure or outward to increase the chamber pressure.

#### For 990,000 - 2,070,000 Btu/hr models (reference FIG. 2-3)

1. The combustion air chamber pressure for these models is typically 1.2 - 1.3 inches water column when the fan is at high speed.
2. If adjustment is necessary, slightly loosen the nut located on the air shutter arm.
3. Adjust the air shutter arm to obtain the desired chamber pressure. Slide the arm inward to decrease the chamber pressure or outward to increase the chamber pressure.

#### All models

4. Once the adjustment procedure is complete, tighten all connections, disconnect the manometer, and replace the cap at the tee.
5. Check all connections and test fire the unit.
6. Replace all panels.

### Checking manifold gas pressure

The gas regulator on the combination gas valve is adjustable to supply the proper manifold pressure for normal operation. The gas valves are factory pre-set and should not need adjusting in most cases. Gas manifold pressures are listed in Table 2B.

Gas manifold pressures may be checked with the use of a manometer. Follow the steps in the *Checking Combustion Air Pressure Section* prior to checking the manifold pressures.

### Checking manifold gas pressure

1. Turn the appliance power switch to the "OFF" position.
2. Remove the upper outer access panels.
3. Remove the 1/8" hex plug from the downstream side of the gas valve (see FIG. 2-4). Install a fitting in the tap and connect a hose from the tap to a manometer.
4. Connect a hose from the tee used to measure the combustion air pressure to the other side of the manometer.
5. Turn the appliance power switch to the "ON" position.
6. With the unit at high fire, check and record the manifold pressure of the valve. The manifold pressure will be the sum of the two pressure readings (reference Table 2B).
7. Repeat this process with each gas valve.

#### WARNING

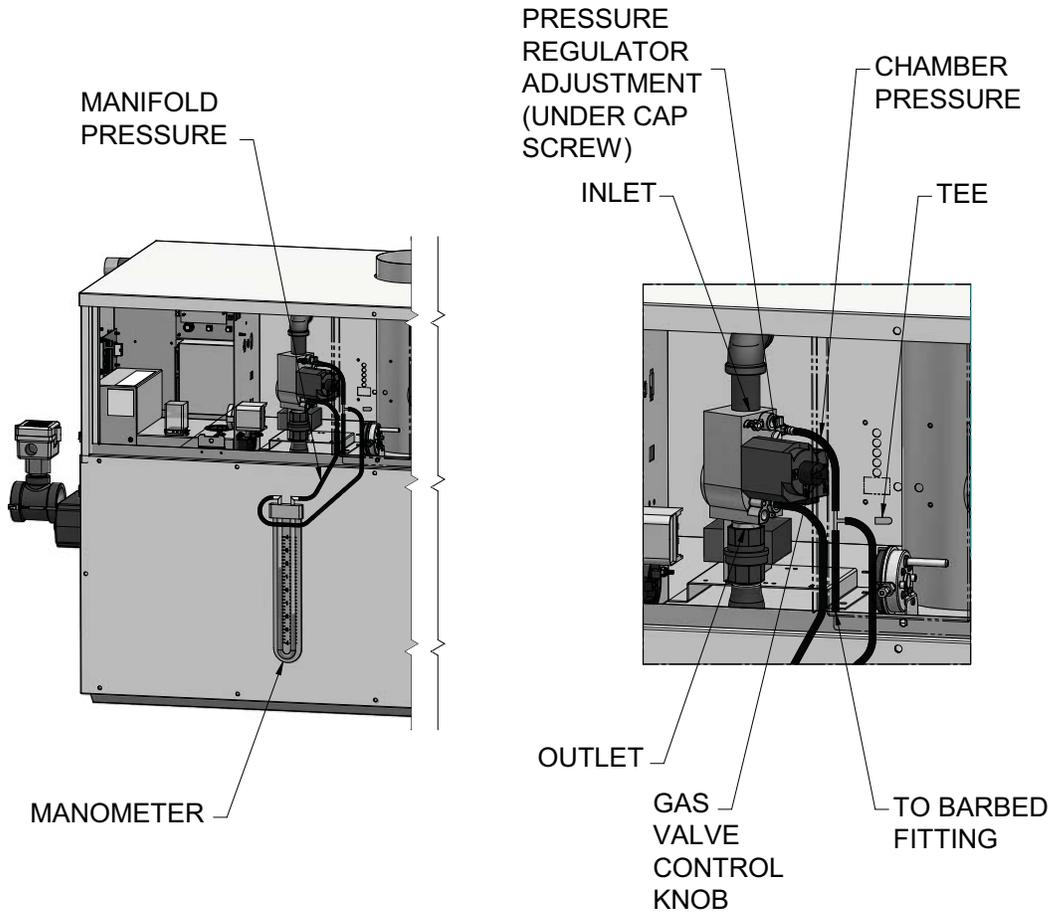
Overfire and underfire hazards! Possible fire, explosion, overheating, and component failure. Do not attempt to adjust firing rate of the appliance. The firing rate must be adjusted only by factory trained personnel.

#### If you must adjust the gas valve regulator pressure, follow the steps below:

1. Remove the cap covering the manifold pressure adjustment screw (see FIG. 2-4). **Note:** Once the cap is removed, the pressure shown on the manometer will change and the unit may turn off.
2. Make a slight adjustment to the manifold pressure adjustment screw. Turning the screw clockwise increases manifold pressure and counterclockwise decreases manifold pressure.
3. Replace the cap and check the manifold pressure. **Note:** Allow the unit to re-light if necessary.
4. Repeat the steps above to match the manifold pressures from Table 2B.
5. Once the adjustment procedure is complete, turn off the appliance, disconnect the manometer, replace and tighten all connections, and replace all panels.
6. Turn on the appliance and test fire the unit.
7. Repeat this process with each gas valve.

## 2 Maintenance *(continued)*

**Figure 2-4** Measuring manifold gas pressure



**TABLE 2B**  
 Net Manifold Pressure  
 Regulator Pressure Less  
 Front Chamber Pressure

MODEL	Nat. Gas	LP
402 - 752	1.8" w.c.	4.6" w.c.
992 - 2072	1.2" w.c.	4.6" w.c.

## 2 Maintenance

### Inspect and clean the heat exchanger

1. Turn off the main electrical power to the appliance.
2. Turn off the main manual gas shutoff to the appliance.
3. Remove the lower outer front access door.
4. Disconnect the manifold(s) from the gas train using the union(s) just below each gas valve.
5. Disconnect wiring to the hot surface igniter(s) and ground.
6. Disconnect burner pressure line at burner.
7. Remove the screws from the manifold mounting bracket(s) and remove the manifold(s).
8. Remove the screws from the burner mounting flanges and slide the burner(s) out toward the front of the unit. Use caution to prevent damage to the burners, refractory, hot surface igniter, and wiring.
9. Remove the inner jacket panel mounting screws and slide the panel assembly out toward the front of the appliance. Use caution to prevent damage to the refractory and hot surface igniter.
10. Check “V” baffles along the front and back edges of the heat exchanger (FIG. 2-5). Remove and clean if necessary.
11. Remove soot from the heat exchanger with a stiff bristle brush. Use a vacuum to remove loose soot from the surfaces and inner chamber.
12. If additional cleaning is required, the heat exchanger can be removed by disconnecting all water piping to the heat exchanger, removing the screws holding the heat exchanger to the inner left side panel, and sliding the heat exchanger towards the front of the appliance. Once the heat exchanger is removed from the appliance, a garden hose can be used to wash the tubes to ensure that all soot is removed from the heat exchanger surfaces.

#### NOTICE

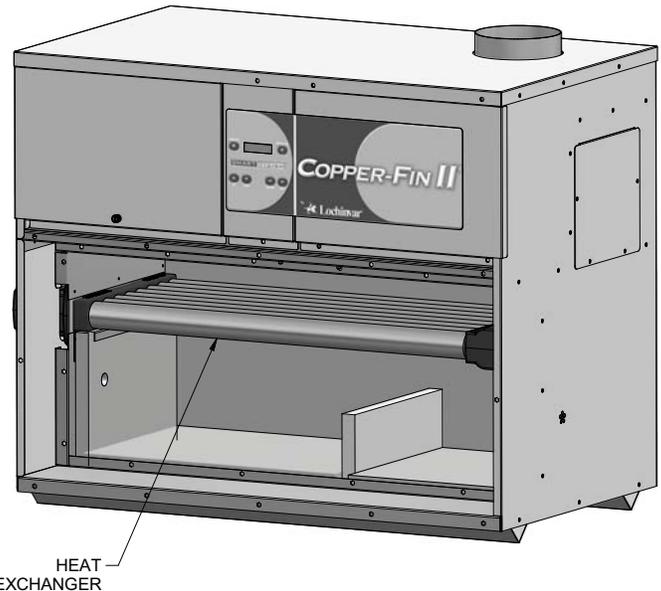
Do not wet the refractory located on the inside of the combustion chamber.

13. Ensure that all burner ports are cleaned to remove any soot (reference this section).
14. Carefully reinstall the heat exchanger, “V” baffles, and frame runners if removed from the appliance.

#### NOTICE

Make sure the frame runners seal securely where they contact the front and rear compartment refractory.

15. Carefully reinstall inner jacket panels, burners, manifolds, wires and hoses. Use new gasket material to ensure a proper air seal.
16. Reassemble all gas and water piping. Test for gas leaks.
17. Reassemble outer jacket panels.
18. Cycle the appliance and check for proper operation.



**Figure 2-5** Location of the Heat Exchanger Inside Jacket

### Review with owner

1. Review the User's Information Manual with the owner.
2. Emphasize the need to perform the maintenance schedule specified in the User's Information Manual (and in this manual as well).
3. Remind the owner of the need to call a licensed contractor should the appliance or system exhibit any unusual behavior.
4. Remind the owner to follow the proper shutdown procedure and to schedule an annual start-up at the beginning of the next heating season.

### Oiled bearing circulators

Inspect the pump every six (6) months and oil as necessary. Use SAE 30 non-detergent oil or lubricant specified by the pump manufacturer.

### 8. Preventative pump maintenance

At regular intervals depending on the conditions and time of operation, the following checks should be made:

1. Pump meets required performance and is operating smoothly and quietly.
2. There are no leaks, particularly at the shaft seal.
3. The motor is not overheating.
4. Remove and clean all strainers or filters in the system.
5. Verify the tripping of the motor overload protection.
6. Check the operation of all controls. Check unit control cycling twice and adjust, if necessary.
7. If the pump is not operated for unusually long periods, the unit should be maintained in accordance with these instructions. In addition, if the pump is not drained, the pump shaft should be manually rotated or run for short periods of time at monthly intervals.
8. To extend the pump life in severe duty applications, consider performing one of the following actions:
  - Drain the pump after each use.
  - Flush the pump, through system, with water or other fluid that is compatible with the pump materials and process liquid.
  - Disassemble the pump liquid components and thoroughly rinse or wash them with water or other fluid that is compatible with the pump materials and process liquid.

If the pump fails to operate or there is a loss of performance, refer to *Section 15. Diagnosing specific problems.*

### 9. Maintaining the pump's motor



**Warning**

***Do not touch electrical connections before you first ensure that power has been disconnected. Electrical shock can cause serious or fatal injury. Only qualified personnel should attempt installation, operation, and maintenance of this equipment.***

### 9.1 Motor Inspection

Inspect the motor at regular intervals, approximately every 500 hours of operation or every three months, whichever occurs first. Keep the motor clean and the ventilation openings clear.

The following steps should be performed at each inspection:

1. Check that the motor is clean. Check that the interior and exterior of the motor is free of dirt, oil, grease, water, etc. Oily vapor, paper, pulp, textile lint, etc. can accumulate and block motor ventilation. If the motor is not properly ventilated, overheating can occur and cause early motor failure.
2. Use an Ohmmeter (“Megger”) periodically to ensure that the integrity of the winding insulation has been maintained. Record the Ohmmeter readings. Immediately investigate any significant drop in insulation resistance.
3. Check all electrical connectors to be sure that they are tight.

### 9.2 Motor Lubrication

Electric motors are pre-lubricated at the factory and do not require additional lubrication at start-up. Motors without external grease fittings have sealed bearings that cannot be re-lubricated. Motors with grease fittings should only be lubricated with approved types of grease. Do not over-grease the bearings. Over-greasing will cause increased bearing heat and can result in bearing/motor failure. Do not mix petroleum grease and silicon grease in motor bearings.

Bearing grease will lose its lubricating ability over time, not suddenly. The lubricating ability of a grease (over time) depends primarily on the type of grease, the size of the bearings, the speed at which the bearings operate and the severity of the operating conditions.

Good results can be obtained if the following recommendations are used in your maintenance program. It should also be noted that pumps with more stages, pumps running to the left of the performance curve, and certain pump ranges may have higher thrust loads. Pumps with high thrust loads should be greased according to the next service interval level.

### 9.3 Recommended lubricant

Severity of service	Ambient temp. (max.)	Environment	Approved types of grease
Standard	+104 °F (+40 °C)	Clean, little corrosion	Grundfos ML motors are greased for life or will have the grease type on the nameplate. Baldor motors are greased with Polyrex EM (Exxon Mobile).
Severe	+122 °F (+50 °C)	Moderate dirt, corrosion	
Extreme	>122 °F (+50°C) or Class H insulation	Severe dirt, abrasive dust, corrosion	

**Note:** If pump is fitted with a bearing flange that requires grease, see the stickers on either the bearing flange or coupling guards for proper grease type and greasing schedule.

### 9.4 Motor lubrication schedule (for motors with grease nipples)

New motors that have been stored for a year or more should be regreased according to the following:

NEMA (IEC) Frame Size	Standard Service Interval	Severe Service Interval	Extreme Service Interval	Weight of grease to add [oz (grams)]	Volume of grease to add [in <sup>3</sup> (teaspoons)]
Up through 210 (132)	5500 hrs	2750 hrs	550 hrs	0.30 (8.4)	0.6 (2)
Over 210 through 280 (180)	3600 hrs	1800 hrs	360 hrs	0.61 (17.4)*	1.2 (3.9)
Over 280 up through 360 (225)	2200 hrs	1100 hrs	220 hrs	0.81 (23.1)*	1.5 (5.2)
Over 360 (225)	2200 hrs	1100 hrs	220 hrs	2.12 (60.0)*	4.1 (13.4)



**Warning**

*The grease outlet plug MUST be removed before adding new grease.*

### 9.5 Lubrication Procedure

*To avoid damage to motor bearings, grease must be kept free of dirt. For an extremely dirty environment, contact Grundfos, the motor manufacturer, or an authorized service center for additional information.*

**Caution**

*Mixing dissimilar grease is not recommended.*

- Clean all grease fittings. If the motor does not have grease fittings, the bearing is sealed and cannot be greased externally.
- If the motor is equipped with a grease outlet plug, remove it. This will allow the old grease to be displaced by the new grease. If the motor is stopped, add the recommended amount of grease. If the motor is to be greased while running, a slightly greater quantity of grease will have to be added.  
**Note:** If new grease does not appear at the shaft hole or grease outlet plug, the outlet passage may be blocked. At the next service interval the bearings must be repacked.
- Add grease SLOWLY taking approximately one minute until new grease appears at the shaft hole in the endplate or grease outlet plug. Never add more than 1-1/2 times the amount of grease shown in the lubrication schedule.
- For motors equipped with a grease outlet plug, let the motor run for 20 minutes before replacing the plug.

### 10. Replacing the motor

If the motor is damaged due to bearing failure, burning or electrical failure, the following instructions detail how to remove the motor for replacement.

*It must be emphasized that motors used on CR pumps are specifically selected to our rigid specifications. Replacement motors must be of the same frame size, should be equipped with the same or better bearings and have the same service factor. Failure to follow these recommendations may result in premature motor failure.*

**Caution**

### 10.1 Disassembly

For disassembly, proceed as follows:

- Turn off and lock out power supply. The power supply wiring can now be safely disconnected from the motor wires. Remove the coupling guards. **Note:** CR 1s, 1, 3, 5, 10, 15, and 20: do not loosen the three shaft seal securing allen screws.
- Using the proper metric Allen wrench, loosen the four cap screws in the coupling. Completely remove coupling halves. On CR1s-CR20, the shaft pin can be left in the pump shaft. CR(N)32, 45, 64, 90, 120, and 150 do not have a shaft pin.
- With the correct size wrench, loosen and remove the four bolts which hold the motor to the pump end.
- Lift the motor straight up until the shaft has cleared the motor stool.

### 10.2 Assembly

For assembly, proceed as follows:

- Remove key from motor shaft, if present, and discard.
- Thoroughly clean the surfaces of the motor and pump end mounting flange. The motor and shaft must be clean of all oil/grease and other contaminants where the coupling attaches. Set the motor on the pump end.
- Place the terminal box in the desired position by rotating the motor.
- Insert the mounting bolts, then diagonally and evenly tighten:
  - for 3/8" bolts (1/2 to 2 hp), torque to 17 ft-lb
  - for 1/2" bolts (3 to 40 hp) torque to 30 ft-lb
  - for 5/8" bolts (50 - 100 hp) torque to 59 ft-lb
  - follow instructions for particular pump model in sections 10.2.1 Torque specifications for CR 1s, 1, 3, and 5 through 10.2.4 CR(N) 32, 45, 64, 90, 120, and 150.

# COMMERCIAL BOILER



## 10 YEAR LIMITED WARRANTY

### EFFECTIVE:

For 10 Years, Lochinvar warrants this product against defects in materials or workmanship and failure due to thermal shock as described in this document, if installed within the United States or Canada, and provided the product remains at its original place of installation.

Warranty coverage begins on the date of installation OR the date of manufacture if installation cannot be verified. *Note: The date of manufacture can be determined using the Serial Number, located on the silver rating label (Example: D12H0024168).*

### WHAT IS COVERED:

Subject to these terms, in the event of a defect in materials or workmanship appearing during the first year, Lochinvar will repair, or at our discretion, replace any part of the product covered under this warranty.

After 1 year, Lochinvar will repair or, at our discretion, replace the defective heat exchanger, for a period of **9 more years**. **You are responsible for all labor, shipping, delivery, installation, and handling costs.**

**Unless authorized in writing, all products must be returned to the factory for warranty determination, at the owner's expense.**

Any replacement part or product will be warranted only for the unexpired portion of the original product's limited warranty period.

If an identical model is no longer available due to a change in law, regulation, or standard, Lochinvar will replace the product with one having at least the same capacity and of equal input. In these instances, you will have the option of paying the difference between what you paid for the original model and the new model with the additional features, or receiving a refund of the portion of the purchase price allocable, on a pro-rata basis, to the unexpired portion of the warranty period.

### OWNER'S RESPONSIBILITIES:

Owners are responsible for selecting a qualified service provider. Visit [www.Lochinvar.com](http://www.Lochinvar.com) for a list of service providers in your area.

- Follow all instructions enclosed with the product.
- Retain all bills of sale or receipts for proof of installation.
- Provide copies of all service and maintenance records.
- Contact your installer or dealer as soon as any problem or defect is noticed.

### FOR SERVICE OR WARRANTY INQUIRIES:

Call your local installer or dealer. Be ready to provide the following information: your name, address and telephone number; the model and serial number of your Lochinvar, product; proof of installation; and a clear description of the problem.

### WHAT IS NOT COVERED, PROBLEMS CAUSED BY:

- Problems caused by improper: gas supply line sizing, gas type, venting, connections, combustion air, voltage, wiring, or fusing
- Improper installation, sizing, delivery, or maintenance
- Failure to follow printed instructions enclosed with the product
- Abuse, misuse, accident, fire, flood, Acts of God
- Improper venting and air intake materials, length, construction, or operations
- Claims related to rust, excessive noise, smell, or taste of water
- Failure to conduct authorized factory start up as required
- Failure to properly perform maintenance, as outlined in the instruction manuals provided by the manufacturer
- Damages due to a failure to allow for thermal expansion
- Alterations that change the intended or certified use of the product
- Failure to follow applicable codes
- Improper chemical addition
- Service trips to explain proper installation, use, or maintenance of the product/unit or to describe compliance requirements under applicable codes and regulations
- Charges related to accessing the product including but not limited to door/wall removal, equipment rental, etc.
- Replacement parts after expiration of this warranty
- Premium associated with after hours or overtime labor

### LIMITATIONS:

NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, THIS IS YOUR SOLE AND EXCLUSIVE WARRANTY. ALL OTHER WARRANTIES, INCLUDING A WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES. TOTAL LIABILITY ARISING AT ANY TIME SHALL NOT EXCEED THE PURCHASE PRICE PAID WHETHER BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER LEGAL THEORY.

## LIMITED WARRANTY

Products manufactured by GRUNDFOS PUMPS CORPORATION (Grundfos) are warranted to the original user only to be free of defects in material and workmanship for a period of 24 months from date of installation, but not more than 30 months from date of manufacture. Grundfos' liability under this warranty shall be limited to repairing or replacing at Grundfos' option, without charge, F.O.B. Grundfos' factory or authorized service station, any product of Grundfos' manufacture. Grundfos will not be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by Grundfos are subject to the warranty provided by the manufacturer of said products and not by Grundfos' warranty. Grundfos will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with Grundfos' printed installation and operating instructions.

To obtain service under this warranty, the defective product must be returned to the distributor or dealer of Grundfos' products from which it was purchased together with proof of purchase and installation date, failure date, and supporting installation data. Unless otherwise provided, the distributor or dealer will contact Grundfos or an authorized service station for instructions. Any defective product to be returned to Grundfos or a service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Material Authorization must be included if so instructed.

GRUNDFOS WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, OR EXPENSES ARISING FROM INSTALLATION, USE, OR ANY OTHER CAUSES. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THOSE WARRANTIES DESCRIBED OR REFERRED TO ABOVE.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow limit actions on how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

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Rev. 3	SHORT-TERM OPERATIONS PLAN

## EXHIBIT A – QUARTERLY MAINTENANCE SCHEDULE

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System	Activity	Planned Duration	QTR 1			QTR 2			QTR 3			QTR 4		
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FOLHD	Clean or check cleanliness of fiber optic connections that plug into FOLHD system.	2 Hrs		•										
FOLHD	Restart the FOLHD detector to verify SYSTEM READY light activates indicating normal detector operation	2Hrs		•										
FOLHD	Perform QUICK START test of detector software, by connecting a computer to the detector and running scans all connected channels.	2 Hrs		•										
FOLHD	Perform calibration of the FOLHD fiber to insure the system remains within its operational parameters. This is done by subjecting the FOLHD fiber to a specific heat source at a specific location on the FOLHD fiber (the FOLHD fiber calibration boxes in the center roadway bays).	4Hrs											•	
FOLHD	Disconnect each leg of the FOHLD fiber to verify proper transmission of the fiber channel signals to the FA System and the Fireworks display system.	2 Hrs											•	
Fire Alarm	Fireworks database upgrades to be performed on an as needed basis, if required.	4Hrs											•	
Fire Alarm	Fireworks database review and disk clean-up. This is a general PC "health" review to and clear any logged database issues over the course of normal operation.	4 Hrs											•	
Fire Alarm	Fireworks History Log Review. This is a general review of the logged activities that occur on the system to identify possible issues to be addressed with the installed equipment. This review will be done in conjunction with the Fireworks database review and disk clean-up.	8Hrs											•	
Fire Alarm	Re-Mapping of the FA System device loops, to review communication status of all installed devices, to be performed during the 1st and last year of the Warranty period.	8Hrs								•				
Fire Alarm	Review of the Fireworks UPS Systems diagnostics	2 Hrs								•				
Fire Alarm	Review the device "sensitivity" of the smoke detectors installed, to review level of cleanliness. Detectors to be cleaned, as required.	1Hr								•				
Fire Alarm	Replace the CO element in the combo heat/CO detector. <b>The CO element needs to be replaced every 7 years, so this device CO element will be replaced at the Owner's expense in the last year of warranty.</b>	1Hr								Note 2				

System	Activity	Planned Duration	QTR 1			QTR 2			QTR 3			QTR 4		
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Fire Alarm	Replace the sealed batteries in the Fire Alarm and UPS Systems. The sealed lead acid batteries are maintenance free so no normal maintenance is required. <b>These batteries do require replacement every 5 years, so they will be replaced at the Owner's expense in the last year of warranty.</b>	16Hrs							Note 1					
FA CCTV	Workstation database upgrades to be performed on an as needed basis, if required.	4Hrs											•	
FA CCTV	Workstation database review and disk clean-up. This is a general PC "health" review to and clear any logged database issues over the course of normal operation.	8Hrs											•	
FA CCTV	Network Video Server database review and disk clean-up. This is a general PC "health" review to and clear any logged database issues over the course of normal operation.	8Hrs											•	
FA CCTV	Review of the Workstation and Equipment Rack UPS Systems diagnostics	4Hrs											•	
FA CCTV	Replace the sealed batteries in the FACCTV and Equipment Rack UPS Systems. The sealed lead acid batteries are maintenance free so no normal maintenance is required. These batteries do require replacement every 5 years, so they will be replaced at the Owner's expense in the last year of warranty.	4Hrs								Note 1				
Deluge Systems Pump Run	Monthly - Fire pump run for 10 minutes	1 Hr	•	•	•	•	•	•	•	•	•	•	•	•
Deluge Systems Pump Test	Annual - Fire Pump Test	4 Hrs				Note 3								
Deluge Systems North Tunnel	Annual - Complete 100% Inspection of I.V. boxes, hangers, exposed piping, sprinklers, valves, gauges, and other system components. (90 Systems)	8 Hrs				Note 3								
Deluge Systems North Tunnel	Annual - Test Every Tamper Switch, Pressure Switch, and Solenoid Valve (90 Systems and No Flow)	16 Hrs				Note 3								
Deluge Systems North Tunnel	Annual - Flow Test 20% of Deluge Systems (18 Systems)	16 Hrs				Note 3								
Deluge Systems North Tunnel	Annual - Integrated System Testing of two Deluge Systems types flowing two systems at two locations (4 Systems)	16 Hrs				Note 3								
Deluge Systems South Tunnel	Annual - Complete 100% Inspection of I.V. boxes, hangers, exposed piping, sprinklers, valves, gauges, and other system components. (93 Systems)	8 Hrs				Note 3								

System	Activity	Planned Duration	QTR 1			QTR 2			QTR 3			QTR 4		
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Deluge Systems South Tunnel	Annual - Test Every Tamper Switch, Pressure Switch, and Solenoid Valve (93 Systems and No Flow)	16 Hrs					Note 3							
Deluge Systems South Tunnel	Annual - Flow Test 20% of Deluge Systems (19 Systems)	16 Hrs					Note 3							
Deluge Systems South Tunnel	Annual - Integrated System Testing of two Deluge Systems types flowing two systems at two locations (4 Systems)	16 Hrs					Note 3							
Deluge Systems	Annual - Attach visible tags on all components tested.	72 Hrs					•							
Electrical	Annual - Elec. Gear - Panelboards (East and West Elec. Rooms)	1Hr					•							
Electrical	Annual - Elec. Gear - Transformers (West Electrical Room)	1Hr					•							
Electrical	Annual - Visual inspection of conduit and wiring, to include FPC/RCP Transformers	4Hrs					•							
Electrical	Annual - Visual inspection of the hanger system of the FOLHD system and CCTV cameras	2Hrs					•							
Electrical	Semi-Annual - Generator Service by Cummings Technician	4Hrs					•							
Electrical	Annual - Generator Service by Cummings	4Hrs											•	
Mechanical	Boilers						•							
Mechanical	Boiler Pumps						•							
Mechanical	System Circulation Pumps						•							
Mechanical	Flue and Vent Fans						•							
Mechanical	Piping and Valves						•							

**Notes:**

1. Batteries will be replaced at Owners expense during the final quarter of Year 5 of the AMP Plan.
2. CO detector element will be replaced at Owners expense during the final quarter of Year 5 of the AMP Plan.
3. Deluge systems to be tested in 2nd quarter (May) of each year as follows:
  - a. Two (2) each sprinkler zones in the NT and the ST will be tested in a full integrated systems test (Fire pump, Boiler Cir Pump, drainage valve fully operational)
  - b. Sixteen (16) additional zones in the NT and seventeen (17) additional zones in the ST will be tested similar to the zones described in Note 3.a.; except that the Fire
  - c. Remaining NT and ST deluge zones will be tested each year by simulating the FOLHD alarm and without introducing water to the roadway.
- d. Proposed schedule for the deluge testing is as follows:
  1. Bore Closure NT - 2 days (Mon-Tues) with alternate days (Wed-Thurs) of same week.
  2. Alternate days will be utilized to conduct the remaining NT deluge zones during daytime hours, as applicable.
  3. Bore closure ST - 2 days (Mon-Tues) with alternate days (Wed-Thurs) of same week. The ST bore closures will be scheduled the following week after the NT
  4. Alternate days will be utilized to conduct the remaining ST deluge zones during daytime hours, as applicable.

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Rev. 3	

## EXHIBIT B – SAFETY PLANS

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Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## SYSTEMS GROUP



## **SYSTEMS GROUP SAFETY MANUAL**

**Systems Group  
14818 W. 6<sup>th</sup> Avenue, Unit 6-A  
Golden, CO 80401  
303-298-7900**

**JDS Uniphase**

**FAS Systems Group LLC**

**EMPLOYEE SAFETY MANUAL**

**Effective February 14, 2005**

**Amended and updated July 29, 2009**

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## FAS SYSTEMS GROUP LLC - Safety Program

### *Written Plan*

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

### **SAFETY POLICY**

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

While FAS SYSTEMS GROUP LLC cannot anticipate every workplace hazard, the following general principals should guide your conduct. To be safe, you must never stop being safety conscious.

By signing the acknowledgement at the end of this handbook, each employee promises to read and implement this injury and illness prevention program. If you don't understand any policy, please ask your supervisor.

Steve Milner is the designated safety coordinator for FAS Systems Group LLC. and is the primary contact for safety related matters. All employee's will receive an orientation to the safety rules upon initial employment and are encouraged to bring to the attention of their supervisor any unsafe conditions or practices. Supervisors will communicate these concerns to the safety coordinator, who will respond to this concern within 24 hours.

Connie Smith, Managing Member

Connie Smith Date 7/30/09

Deborah A Ballman, Managing Member

Deborah A Ballman Date 7/30/09

### ***Safety Program Goals***

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

However, every injury that does occur on the job, even a slight cut or strain, must be reported to management as soon as possible. Under no circumstances, except emergency trips to the hospital, should an employee leave the work site without reporting an injury. **Also note we use a designated medical clinic for all workers compensation claims. Our designated providers are CONCENTRA and Kaiser On-the Job.** A list of the locations has been provided to you for your information. Contact Steve Milner, Helen Fitzgerald, or your supervisor if you need help in locating the nearest clinic or if you have further questions. If you use another doctor or clinic, you will bear the cost and our workers compensation coverage will not pay the bills. Remember, when you have an accident, everyone is hurt. Please work safely. Safety is everyone's business.

Also, FAS SYSTEMS GROUP LLC will endeavor to return injured employees to work as quickly as possible. We have an aggressive return to work program. Returning an injured employee to work reduces the company's costs (the company's costs are your costs too, think and act like an owner, because you are!) and reduces recovery times, that is, it gets injured employees back to health sooner.

### **First Aid/OSHA Requirements**

**Sudden injuries or illnesses, some of which may be life threatening, occur at work.**

**If an employer can take employees to an infirmary, clinic, or hospital, or if outside emergency assistance can arrive within the allotted times, the employer is not required to train employees in first aid.**

**The OSHA First Aid standard (29 CFR 1910.151)**

**First Aid kits are provided in all company vehicles.**

### ***Safety Rules for All Employees***

It is the policy of FAS SYSTEMS GROUP LLC that everything possible will be done to protect you from accidents, injuries and/or occupational disease while on the job. Safety is a cooperative undertaking requiring an ever-present safety consciousness on the part of every employee. If an employee is injured, positive action must be taken

promptly to see that the employee receives adequate treatment. No one likes to see a fellow employee injured by an accident. Therefore, all operations must be planned to prevent accidents. To carry out this policy, the following rules will apply:

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

### ***Safety and Health Training***

Training is one of the most important elements of any injury and illness prevention program. Such training is designed to enable employees to learn their jobs properly, bring new ideas to the workplace, reinforce existing safety policies and put the injury and illness prevention program into action.

Training is required for all employees. Tailgate safety meetings will be held no less than weekly, more often as dictated by the job, critical phases, hazardous operations or considerations as appropriate. Written records will be kept for these meetings.

Formal training meeting OSHA or other applicable requirements and standards will be provided to all affected employees.

### ***Accident Investigation***

All accidents will be investigated. A satisfactory accident report will answer the following questions:

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

### ***Hazardous Substances Communication (HazCom)***

When hazardous substances are used in the workplace, a hazard communication program dealing with Material Safety Data Sheets (MSDS), labeling and employee training will be in operation. MSDS materials will be readily available for each hazardous substance used. A training program will be given to keep employees informed. See the hazcom section at the end of this program.

### *Subcontractor Safety*

Subcontractors are required to have an effective safety and health program in place, and to meet all applicable OSHA and related requirements. Subcontractors not meeting these requirements will not be allowed on FAS SYSTEMS GROUP LLC jobsites. Subcontractors will provide copies of their safety programs or applicable sections, copies of safety meeting minutes, etc., as requested by FAS SYSTEMS GROUP LLC's management or job superintendents. All subcontractors are expected to participate in the weekly job meetings held, which will address safety as a regular topic.

### *Clean Work Areas*

All areas controlled by FAS SYSTEMS GROUP LLC must be kept orderly and in a clean condition and used only for activities or operations for which they have been approved. Housekeeping is a direct reflection of how we operate and the quality of our work.

### *Personal Protective Equipment (PPE)*

FAS SYSTEMS GROUP LLC will provide suitable PPE to protect employees from hazards in the workplace. The Superintendent will advise on what protective equipment is required for the task, but the supervisor of the operation must obtain this equipment and see that it is used. **PPE is not a substitute for adequate engineering controls, a better process, a different tool, or some other means of reducing the hazard to the worker. Remember, PPE is the last line of defense!**

Hardhats are provided and required on all FAS SYSTEMS GROUP LLC jobsites. This requirement applies to all employees, subcontractors and visitors.

FAS SYSTEMS GROUP LLC's policy is that eye protection will be worn at all times on construction sites. Suitable eye protection will be issued to all personnel at hire and will be replaced as needed due to normal wear and tear; however, employees are responsible for their eye protection and lost safety glasses will be replaced by the employee, not by FAS SYSTEMS GROUP LLC.

### *Ladders*

Ladders must be in good condition, made of suitable material, of proper length, and of the correct type for the use intended. Damaged ladders must never be used; they should be repaired or destroyed. Ladders used near electrical equipment must be made of a non-conducting material. Stored ladders must be easily accessible for inspection and service, kept out of the weather and away from excessive heat, and well supported when stored horizontally.

A portable ladder must not be used in a horizontal position as a platform or runway or by more than one person at a time. A portable ladder must not be placed in front of doors that open toward the ladder or on boxes, barrels, or other unstable bases. Ladders must not be used as guys, braces, or skids. The height of a stepladder should be

sufficient to reach the workstation without using the top or next to the top steps. Bracing on the back legs of stepladders must not be used for climbing.

The proper angle (about 75 degrees) for a portable straight ladder can be obtained by placing the base of the ladder a distance from the vertical wall equal to one quarter of the vertical distance from base to top of ladder's resting point. Ladders must be ascended or descended facing the ladder with both hands free to grasp the ladder. Tools must be carried in a tool belt or raised with a hand line attached to the top of the ladder. Ladders should be tied in place to prevent side slip.

### *Scaffolds*

All scaffolds, whether fabricated on site, purchased, or rented must at a minimum, conform with the current OSHA specifications (1926 Subpart L). Competent persons will be on each job using scaffolds. Refer to the standard for specific requirements.

1. Follow the manufacturer's instructions when erecting the scaffold.
2. Do not work or climb on scaffolds that wobble or lean to one side.
3. Do not work on scaffolds outside during stormy or windy weather.
4. Initially inspect scaffold prior to mounting. Do not use a scaffold if any pulley, block, hook, or fitting is visibly worn, cracked, rusted or otherwise damaged. Do not use a scaffold if any rope is frayed, torn or visibly damaged.
5. Do not use any scaffold tagged "Out of Service".
6. Do not use unstable objects such as barrels, boxes, loose brick or concrete blocks to support scaffolds or planks.
7. Do not use a scaffold unless guardrails and all flooring are in place.
8. Level the scaffold after each move. Do not extend adjusting leg screws more than 12 inches.
9. Do not walk or work beneath a scaffold unless a wire mesh has been installed between the mid-rail and the toe-board or planking.
10. Use safety belts and lanyards when working from scaffolds that are higher than 10 feet and that do not have top and mid-guard rails.
11. Do not climb the cross braces for access to the scaffold. Use the ladder.
12. Do not jump from, to or between scaffolding.
13. Do not slide down cables, ropes or guys used for bracing.
14. Keep both feet on the decking. Do not sit or climb on the guardrails.
15. Do not lean out from the scaffold. Do not rock the scaffold.
16. Keep the scaffold free of scraps, loose tools, tangled lines and other obstructions.

17. Do not throw anything “overboard” unless a spotter is available. Use debris chutes or lower things by hoist or by hand.
18. Do not move a mobile scaffold with anyone on the scaffold.
19. Lock and chock wheels on rolling scaffolds before using.

### ***Fall Protection***

FAS SYSTEMS GROUP LLC complies with applicable provisions of OSHA’s 1926 Subpart M for fall protection. It is our intention to make use of approved handrail systems whenever possible as a fall protection measure. However, when workers are required to work from surfaces that are in excess of 6 feet above an adjacent safe work place and are unprotected by railings (eg; at height, at leading edges, etc.) other provisions of the OSHA standard such as use of fall arrest gear will be followed, see the competent person on your crew for more information.

### ***Tools***

An assured grounding program will be followed for all electrical cords and hand tools. See your supervisor for details on the program and the color for current tagging. An electrical circuits providing power will be ground fault protected either at the circuit breaker or by use of a GFI pigtail between the cord and the power tool - see your supervisor for details. Repairs of defective tools will only be made by qualified electrical personnel. Powder actuated tools will be used only employees adequately trained in the proper use of such tools, and holding a current training card for such tools.

### ***Power Tools***

1. Do not use power equipment or tool on which you have not been trained.
2. Keep power cords away from the path of drills, saws, vacuum cleaners, floor polishers, mowers, slicers, knives, grinders, irons and presses.
3. Do not carry plugged-in equipment or tools with your finger on the switch.
4. Do not carry equipment or tools by the cord.
5. Disconnect the tool from the outlet by pulling the plug, not the cord.
6. Turn the tool off before plugging or unplugging it.
7. Do not leave tools that are “On” unattended.
8. Do not handle or operate electrical tools when your hands are wet or when you are standing on a wet floor.
9. Do not operate spark-inducing tools near containers labeled “Flammable” or in an explosive environment.
10. Turn off electrical tools and disconnect the power source from the outlet before attempting repairs or service work. Tag the tool “Out of Service”.
11. Do not connect multiple electrical cords in a single outlet.

12. Do not run extension cords through doorways, through holes in ceilings, walls or floors.
13. Do not drive over, drag, step on or place objects on cords.
14. Do not operate a power hand tool or portable appliance with the two-pronged adapter or a two-conductor extension cord.
15. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
16. Never operate a power hand tool or portable appliance while holding a part of the metal casing or holding the extension cord in your hand. Hold all portable power tools by the plastic handgrips or other nonconductive areas designed for gripping purposes.
17. Do not operate a power hand tool or portable appliance that has a frayed, worn, cut, improperly spliced or damaged power cord.
18. Never operate electrical equipment barefooted. Wear rubber-soled or insulated work boots.
19. Do not operate a power hand tool or portable appliance if the ground pin from the three pronged power plug is missing or has been removed.

#### ***Powder Actuated Tools***

1. Only employer-authorized personnel, with a valid certification card may operate powder-actuated tools.
2. Wear safety glasses, goggles or face shields when operating powder-actuated tools.
3. Wear earplugs or earmuffs when making fastenings.
4. Do not permit bystanders in the area when using a powder-actuated tool.
5. Do not load tool until ready to make a fastening.
6. Keep tool pointed in a safe direction (away from personnel).
7. Post sign alerting co-workers that a powder actuated tool is being used.
8. After use, lock powder actuated tools and powder loads in a container and store in a safe place such as a locker or the trunk of a car.

#### ***Hand Tools***

1. Use tied-off containers to keep tools from falling off of scaffolds and other elevated work platforms.
2. Keep blades of all cutting tools sharp.
3. Carry all sharp tools in sheaths or holsters.
4. Tag worn, damaged or defective tools "Out of Service" and do not use them.

5. Do not use a tool if its handle has splinters, burrs, cracks, splits, or if the head of the tool is loose.
6. Do not use impact tools that have mushroomed heads.
7. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
8. Do not chop at heights above your head when working with a hand axe.
9. Do not carry sharp or pointed hand tools in your pockets unless it is sheathed.
10. Do not perform "make-shift" repairs to tools.
11. Do not use "cheaters" on load binders or "boomers".
12. Do not carry tools in your hand when climbing. Carry tools in tool belts or hoist the tools to the work area with a hand line.
13. Do not throw tools from one location to another, from one employee to another, from scaffolds or other platforms.

### ***Lifting Procedures***

1. Plan the move before lifting; removing obstructions from your chosen pathway.
2. Test the weight of the load before lifting by pushing the load along its resting surface.
3. If the load is too heavy or bulky, use lifting and carrying aids such as hands trucks, dollies, pallet jacks and carts, or ask for assistance from a co-worker.
4. If assistance is required to perform a lift, coordinate and communicate your movements with those of your co-worker.
5. Position your feet 6 to 12 inches apart with one foot slightly in front of the other.
6. Face the load.
7. Bend at the knees, not the back.
8. Keep your back straight.
9. Get a firm grip on the object with your hands and fingers. Use handles when present.
10. Never lift anything if your hands are greasy or wet.
11. Wear protective gloves when lifting objects with sharp corners or jagged edges.
12. Hold objects as close to your body as possible.
13. Perform lifting movements smoothly and gradually; do not jerk the load.
14. If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.

15. Set down the objects in the same manner as you picked them up, except in reverse.
16. Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.
17. Slide materials to the end of the tailgate before attempting to lift them off a pick-up truck. Do not lift over the walls of tailgate of the bed.

***Stairways, Floors and Openings***

1. Do not work on open sided floors, elevated walkways or elevated platforms if there are no guardrails in place.
2. Stand clear of floor openings if guardrails or covers are removed or displaced.

# **POWER LOCKOUT PROCEDURE**

**Lockout procedure for FAS SYSTEMS GROUP, LLC**

## **I. PURPOSE**

The purpose of this procedure is to assure that employees are protected from unintended machine motion or unintended release of energy which could cause injury.

## **II. MANAGEMENT RESPONSIBILITIES**

- A. Each supervisor shall train new employees and periodically instruct all of their employees regarding provisions and requirements of this lockout procedure.
- B. Each supervisor shall effectively enforce compliance of this lockout procedure including the use of corrective disciplinary action where necessary.
- C. Each supervisor shall assure that the locks and devices required for compliance with the lockout procedure are provided to their employees.
- D. Prior to setting up, adjusting, repairing, servicing, installing, or performing maintenance work on equipment, machinery, tools, or processes, the supervisor shall determine and instruct the employees of the steps to be taken to assure they are not exposed to injury due to unintended machine motion or release of energy.

## **III. EMPLOYEES RESPONSIBILITY**

- A. Employees shall comply with the lockout procedure.
- B. Employees shall consult with their supervisor or other appropriate knowledgeable management personnel whenever there are any questions regarding their protection.
- C. Employees shall obtain and care for the locks and other devices required to comply with the lockout procedure.

#### **IV. GENERAL**

- A. The power source of any equipment, machine, tool, or process to be set-up, adjusted, repaired, serviced, installed, or where maintenance work is to be performed and unintended motion or release of energy could cause personal injury, such a power source shall be locked out by each employee doing the work. Sources of energy, such as springs, air, hydraulic and steam shall be evaluated in advance to determine whether to retain or relieve the pressure prior to starting the work.
- B. Safety locks are for the personal protection of the employees and are only to be used for locking out equipment.
- C. Safety locks, adapters, and "Danger Tags" can be obtained from a supervisor.
- D. Equipment locks and adapters can be obtained from a supervisor. The sole purpose of the "Equipment" lock and adaptor is to protect the equipment during periods of time when work has been suspended or interrupted. The locks are not to be used as a substitute for the employee's personal safety lock.
- E. Personal locks shall contain a tag with employee's name on it.
- F. One key of every lock issued shall be retained by the employee to whom it was issued and the only other key to the lock shall be retained by the superintendent.
- G. Employees shall request assistance from their supervisor if they are unsure of where or how to lockout equipment.
- H. Any questions concerning the lockout procedure should be directed to the employee's supervisor.

#### **V. LOCKING OUT AND ISOLATING THE POWER SOURCE**

- A. Equipment, machines, or processing main disconnect switches shall be turned off and locked in the off position only after the electrical power is shut off at the point of operator control. Failure to follow this procedure may cause arcing and possibly an explosion.
- B. Equipment/tools connected to over a 110 volt source of power by a plug-in cord shall have a locking device applied to the plug attached to the cord leading to the machine to be considered locked out.

- C. Equipment/tools connected to a 110-volt source of power by a plug-in cord shall be considered locked out if the plug is disconnected and tagged with a "do not start tag."
- D. After locking out power source, the employee shall try the equipment, machine, or process controls to ensure no unintended motion will occur; or test the equipment, machine or process by use of appropriate test equipment to determine that the energy isolation has been effective.
- E. When two or more employees work on the same equipment, each is responsible for attaching his/her lock. Safety locks and adapters are to be fixed on levers, switches, valves, etc. in the non-operative (off) position.
- F. An employee who is assigned to a job and upon arrival finds an "Equipment Lock," "Adaptor," and "Danger Tag" affixed to the equipment shall take the following action:
  - 1. Affix his/her personal lock to the "Equipment Adaptor."
  - 2. Determine who placed the equipment out of service and contact all parties who have locks on the equipment to determine if the assignment to be performed would affect their safety. The assignment will proceed only if safe to do so with all parties involved.
  - 3. Try the controls to ensure no unintended motion will occur before starting work or qualified personnel shall test the equipment, machine, or process by use of appropriate test equipment to determine that the energy isolation has been effective. (Such testing equipment is only to be employed by trained qualified personnel.)

## **VI. PERFORMING TEST AND ADJUSTMENTS DURING LOCKOUT**

- A. Power may be turned on when it is required to perform tests or adjustments. All of the rules pertaining to removing locks and restoring power shall be followed. The equipment or process shall again be locked out if it is necessary to continue work after completing the test or adjustments.
- B. If the employee leaves the job before its completion, such as job reassignment, the employee shall remove his/her personal lock and adaptor and replace it with an "Equipment" lock and adaptor. In addition, the employee will prepare and attach a "Danger Tag" indicating the reason

the equipment is locked out (should more than one employee be assigned to the job, the last employee removing his/her lock will be responsible for affixing the "Equipment" lock, adaptor and the "Danger Tag").

- C. Upon completion of the work, each employee will remove his/her lock, rendering the machine operable when the last lock is removed.
- D. The employee responsible for removing the last lock, before doing so, shall assure that all guards have been replaced, the equipment, machine, or process is cleared for operation, and appropriate personnel notified that power is being restored. This employee is also responsible for removing the "Equipment" lock and returning it to the supervisor.

## **VII. EMERGENCY SAFETY LOCK REMOVAL**

- A. The superintendent, or other designated management person, will be authorized to remove an employee's lock under the following conditions:
  - 1. Receipt of a written request signed by the appropriate supervisor which shall state the reason the employee is not able the lock.
  - 2. The supervisor is responsible for making certain all the requirements for restoring power are followed.

### ***Vehicle Use***

Person Use: The use of FAS SYSTEMS GROUP LLC's vehicles is for business use only. No personal use of FAS Systems Group LLC 'S vehicles is allowed.

The FAS SYSTEMS GROUP LLC requires that an operator hold a valid driver's license for the class of vehicle that he/she is authorized to operate. All employees with driving duties must meet FAS SYSTEMS GROUP LLC's motor vehicle record (MVR) standards as described below:

It is a FAS SYSTEMS GROUP LLC 's policy and requirement for employment, that every employee position with driving duties, requires a motor vehicle record (MVR) meeting the grading requirements stated below. This MVR policy applies both to drivers of company owned vehicles, as well as employees using personal vehicles in the course of company business.

MVR's will be examined prior to the start of employment, and at least annually thereafter. Any job offer made to an employee-candidate for a position with driving duties shall be contingent upon an MVR meeting the required standards; continued employment in a position with driving duties, also requires an MVR meeting the standards outlined below.

The standards for motor vehicle records are as follows:

1. All operators must have a valid driver's license for at least the last three years.
2. No new driver will be hired with a "borderline" or "poor" MVR. MVR 's will be graded based on the table below, **as minimum requirements.**
3. Driving records must remain "acceptable" or "clear", as graded on the table below, for continued employment in positions with driving duties.
4. Any exceptions to these guidelines must be referred to senior management for approval, in writing. The auto insurance carrier will be consulted on any/all MVR 's not meeting the minimum criteria.

**MOTOR VEHICLE RECORD GRADING CRITERIA:** (last 3 years)

Number of At-Fault Accidents

# of Violations	0	1	2	3
0	Clear	Acceptable	Borderline	Poor
1	Acceptable	Acceptable	Borderline	Poor
2	Acceptable	Borderline	Borderline	Poor
3	Borderline	Borderline	Poor	Poor
4	Poor	Poor	Poor	Poor

Note:

- \* Any major violation is a "poor" MVR.
- \* "Clear" MVR - no points or violations.
- \* "Acceptable" MVR - one at-fault accident in last three years and less than two violations, or, zero at-fault accidents and one or two violations.
- \* "Borderline" MVR - zero at-fault accidents and three violations, or, one at-fault accident and two or three violations, or, two at-fault accidents in last three years and less than two violations.
- \* "Poor" MVR - one or more major violations, or, one at-fault accident and four or more violations, or, two at-fault accidents and three or more violations, or, three or more at-fault accidents in the last three years.
- \* "At-Fault Accident" - Any accident where the driver is cited with a violation, or negligently contributes to the incident, or any single vehicle accident where the cause is not equipment related.

**MAJOR VIOLATIONS:**

- \* Driving under the influence of alcohol or drugs.
- \* Driving while impaired.
- \* Failure to stop/report an accident.
- \* Reckless or careless driving.

- \* Making a false accident report.
- \* Homicide, manslaughter or assault arising out of the use of a vehicle.
- \* Driving while license is suspended or revoked.
- \* Attempting to elude a police officer.

**MINOR VIOLATIONS:** Any moving violation other than a major, except:

- \* Motor vehicle equipment, load or size requirement.
- \* Improper/failure to display license plates (if they exist).
- \* Failure to sign or display registration.
- \* Failure to have driver's license in possession (if valid license exists).

FAS SYSTEMS GROUP LLC will request motor vehicle records (MVR 's) at least annually, for every employee who has driving duties. The purpose of this review is to ensure that all designated drivers who enjoy driving privileges while employed by FAS SYSTEMS GROUP LLC 's meet the established criteria set forth above, that is, MVR 's must be "acceptable" or "clear". Applicants not meeting these guidelines are not eligible for hire for positions with driving duties; current employees not meeting these requirements will be removed from positions with driving duties and placed on probation, or terminated.

### *Auto Accidents*

In the event of an auto accident, call police authorities and complete the accident report form (copy attached) found in the glove box of the company vehicle. Fill out the form as completely as possible. **Do not admit liability.**

### *Safety Belts*

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

## **HAZARD COMMUNICATION PROGRAM**

### **Hazcom Policy**

The purpose of this program is to maintain a safe work environment, and to keep you informed per the OSHA Hazard Communication Standard (29CFR1910.1200; also known as the "worker right to know law"). This will be done by compiling and maintaining a chemical inventory, material safety data sheets (MSDS 's), labeling requirements and providing training to all affected employees.

This program applies to all employees who may be exposed to hazardous chemical substances under normal working conditions or during an emergency situation.

John Ballman has been assigned duties as program coordinator and has overall responsibility for the program. The coordinator will review and update the program as necessary. Copies of the written program are available from the FAS Systems Group

LLC. H.R Dept. The program will include a hazard communication system which: establishes a system for communicating chemical hazards, how requirements will be met, and a training program to convey knowledge to employees.

In this program, you will be kept informed about the Hazcom standard, the hazardous properties of any chemicals you may be exposed to, safe handling procedures, and measures to take to protect yourself from these chemicals.

### **Chemical Inventory**

John Ballman will keep a chemical inventory (a list of chemicals) used in our operations. The list will include the amounts and locations of the chemicals and the expected work practices under which these chemicals will be used, and the corresponding MSDS. The list will be maintained by the program coordinator and kept in the office.

#### **Labels**

All chemical containers are required to be adequately labeled showing the chemical identity and hazards of the chemical. If chemicals are transferred from original containers to other containers (for instance, to plunger cans or other portable containers used at a workstation), then the container into which the chemical is transferred, must be labeled. The program coordinator is responsible for implementing and maintaining a labeling system in compliance with the OSHA standard. Any other means of transferring chemicals such as piping systems should also be labeled and/or color-coded so that chemicals can be easily identified.

#### **Material Safety Data Sheets**

MSDS's are mandated by OSHA as a tool to convey information about chemicals used in the workplace. MSDS's are a primary source of chemical information for you - the worker using the chemicals. Information important for you to know might include: physical and chemical characteristics of the chemical, acute and/or chronic exposures, routes of entry, exposure limits (if established), emergency and first aid response procedures, and where to call for more information.

#### **Training**

Employees will be trained on the reasons for the program, the hazard communication system, labeling policies and procedures, as well as MSDS 's. Training will be provided at hire, whenever a new chemical or process presents a change in exposure, or, annually. The training will include: specific information on labeling and how to use it; where MSDS's can be found; specific information about MSDS's and respective sections of an MSDS (hazards, characteristics, cautions to be followed while using the chemical, required personal protective equipment, among others). A training outline is attached as an addendum to the compliance checklist. Employees will be quizzed after the training to ensure employees understand the hazcom program (a sample quiz is attached).

Employees will receive as needed, training for non-routine tasks presenting chemical hazards not previously addressed in the hazcom program.

**Outside/Contractor Employees**

Any outside employees or contractors coming on-site exposed to chemical hazards on our premises in the course of their work, will be informed of our hazcom system, policies and procedures.

**EMPLOYERS' HazCom  
Assignment Schedule**

<u>Topic</u>	<u>Assigned To</u>	<u>Completion Date</u>
Coordinator Appointed		
Management Orientation		
MSDS - supplier		
Publish Chemical Inventory List (CIL)		
MSDS Master File		
Written HazCom Manual		
Contractor Arrangements		
MSDS Binder and Distributed		
Labels--Signs		
Process Sheets Other Warnings		
ID of Affected Employees		
Training		
Training Records		
Training Updated		

# Hazcom Training Outline

## INTRODUCTION

### Reasons for Training

- Hazard Communications Standard
- Providing for the employees welfare

### Description of the Standard Requirements

- Material Safety Data Sheets (Available for employees)
- Labeling requirements (Every container--even small)
- Written program (available to employees)
- Information to employees
- The current training

## INFORMATION TO EMPLOYEES

- Location of posted information
- List of standard requirements
- List of what operations involve hazardous chemicals
- List of locations where data sheets and copies of the program can be found

## MATERIAL SAFETY DATA SHEETS

- Locations
- How to read and understand data sheets.
- Use a completed data sheet as an outline or transfer it to slides, overheads, etc.
- What are TLV's, PEL's, and TWA's

WHAT CHEMICALS ARE IN THE WORK AREA; WHAT ARE THE HAZARDS; HOW CAN THE LEVEL BE DETECTED; AND HOW CAN THE EMPLOYEE PROTECT HIM/HERSELF:

### Chemical Name

#### Hazards:

- Flammable?
- Reactive?
- Toxic on contact?
- Toxic by inhalation?
- Cancer suspect?
- Reproductive problems?
- Irritating?
- Causes burns?
- Other hazards?

How can the presence of the chemical be detected if it is toxic:

- In the air?

- On parts of the body or on skin?

What level of the chemical is hazardous

What symptoms indicate over-exposure.

How does the employer prevent over-exposure:

- Monitoring of air
- Ventilation
- Personal protective equipment provided
- Medical surveillance
- Mechanized processes to avoid contact

What personal protective measures should be taken by the employee:

- Equipment for normal use
- Equipment for a foreseeable emergency
- How to obtain equipment
- Instructions on the use of the equipment

NOTE: Repeat the above instructions for each chemical present in the work area. Chemicals with the same hazard properties that are used in the same way may be combined.

DESCRIBE THE LABELING PLAN FOR ALL CHEMICALS IN THE PLANT

- Who will assure labels are affixed
- What are the employee's responsibilities
- Who can they call if an improperly labeled container is discovered
- What, if any, disciplinary action will be taken against violators of the rules.
- How to refer to the data sheet after reading the label

DESCRIBE FORESEEABLE EMERGENCIES AND HOW EMPLOYEES CAN PROTECT THEMSELVES

- Describe possible emergency such as tank leak or overheating
- Describe measures employees should take such as evacuation or personal protective equipment

NOTE: Repeat the above for each foreseeable emergency situation.

SUMMARIZE THE COMPANY PLAN AND WHERE THE EMPLOYEE CAN LOOK FOR INFORMATION ON:

- Labels
- Data Sheets
- Who can answer further questions

## **Blood borne Pathogens – General | Universal Precautions**

TAKE UNIVERSAL PRECAUTIONS:

THEY'RE YOUR BEST PROTECTION!

Treat all human blood and body fluids as if they are infected.

DO:

.Cover cuts, rashes, and broken skin.

.Wash hands and exposed skin with soap and water or an

.Alcohol-based disinfectant hand rub immediately after exposure to infectious fluids.

.Use a disinfectant solution to clean and decontaminate any area where fluids have spilled.

.Avoid splashes and spills of body fluids.

.Handle needles or other "sharps" carefully and dispose of them properly.

.Use a pocket mask or other protective device if performing CPR.

DON'T:

.Break or shear contaminated needles or other sharps.

.Reuse needles or other sharps.

.Keep food or drink in areas with exposure potential.

.Eat, drink, smoke, or apply cosmetics or lip balm, or handle contact lenses where there are body fluids.

## EYE PROTECTION SELECTION CHART

SOURCE	ASSESSMENT of HAZARD	PROTECTION
<b>IMPACT:</b> grinding, machining, masonry work, sawing, drilling, chiseling, powered fastening, riveting, sanding	flying fragments, objects, large chips, particles, sand, dirt, etc.	spectacles with side protection, goggles, face shields; see notes 1, 3, 5, 6, & 10; for severe exposure, use faceshield
<b>HEAT:</b> furnace operations, pouring, casting, hot-dipping, welding	hot sparks	faceshields, goggles, spectacles with side shields - for severe exposure, use faceshield; see notes 1, 2 & 3
	splash from molten metals	faceshields worn over goggles; see notes 1, 2 & 3
	high temperature exposure	screen faceshields, reflective faceshields; see notes 1, 2 & 3
<b>CHEMICALS:</b> acid and chemicals handling, degreasing, plating	splash	goggles-eyecup and cover types; for severe exposures use faceshield; see notes 3 & 11
	irritating mists	special purpose goggles
<b>DUST:</b> woodworking, buffing, general dusty conditions	nuisance dust	goggles-eyecup and cover types; see note 8
<b>LIGHT &amp; RADIATION:</b> electric arc welding:  gas welding:  cutting, torch brazing:  glare	optical radiation	welding helmets or welding shields, typical shades 10-14; see notes 9 & 12
	optical radiation	welding goggles or welding faceshield, typical shades: gas welding 4-8, cutting 3-6, brazing 3-4; see notes 3 & 9
	optical radiation	spectacles or welding faceshield, typical shades 1.5-3; see notes 3 & 9
	poor vision	spectacles with shaded or special purpose lens, as suitable; see notes 9 & 10

Notes to Eye and Face Protection Selection Chart:

- (1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards should be provided. Protective devices do not provide unlimited protection.
- (2) Operations involving heat may also involve light radiation. As required by the standard, protection from both hazards must be provided.
- (3) Faceshields should only be worn over primary eye protection (spectacles or goggles).
- (4) As required by the standard, filter lenses must meet the requirements for shade designations in 1910.133(a)(5). Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.
- (5) As required by the standard, persons whose vision requires the use of prescription (Rx) lenses must wear either protective devices fitted with prescription (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear.
- (6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.
- (7) Caution should be exercised in the use of metal frame protective devices in electrical hazard areas.
- (8) Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog. Frequent cleansing may be necessary.
- (9) Welding helmets or faceshields should be used only over primary eye protection (spectacles or goggles).
- (10) Non-sideshield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for "impact."
- (11) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designed and used so that it provides both adequate ventilation and protects the wearer from splash entry.
- (12) Protection from light radiation is directly related to filter lens density. See note (4) . Select the darkest shade that allows task performance.

## ***FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY***

Operations	Electrode Size (1/32 in.)	Arc Current	Min. Protective Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	> 8	250-550	11
Gas metal arc welding and flux cored arc welding	less than 60		7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten arc welding		less than 50	8
		50-150	8
		150-500	10
Air carbon Arc cutting	(Light) (Heavy)	less than 500 500-1000	10 11
Plasma arc welding		less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(light)(**)	less than 300	8
	(medium)(**)	300-400	9
	(heavy)(**)	400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

### ***Filter Lenses for Protection Against Radiant Energy***

Operations	Plate thickness-inches	Plate thickness-mm	Minimum Prot. Shade
<b>Gas Welding:</b>			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6
<b>Oxygen cutting:</b>			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

Footnote(\*) As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation..

Footnote(\*\*) These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workplace.

**ACCIDENT INVESTIGATION FORM**

Employee Name \_\_\_\_\_ Date of Injury/Illness \_\_\_\_\_  
Occurred @ (time) \_\_\_\_\_ am, pm Date Reported \_\_\_\_\_  
Position \_\_\_\_\_ Tenure/Experience @ This Job \_\_\_\_\_

List Witnesses: \_\_\_\_\_  
Outcome: Injury \_\_\_\_\_ Illness \_\_\_\_\_ Prop. Damage \_\_\_\_\_ Close Call \_\_\_\_\_  
Recordable? \_\_\_\_\_

Nature of Injury/Illness \_\_\_\_\_ Injury Source \_\_\_\_\_ Part of Body \_\_\_\_\_  
Describe (see other side): \_\_\_\_\_

Describe The Incident/ Accident & How It Happened: \_\_\_\_\_

Were Any Tools, Substances, Processes, Etc. Involved With The Accident? (be specific) \_\_\_\_\_

Describe Any Unsafe Acts, or, Unsafe Mechanical/Physical/Environmental Conditions At The Time Of The Accident (be specific): \_\_\_\_\_

Was Personal Protective Equipment Required? \_\_\_\_\_ Was It Being Worn? \_\_\_\_\_  
Describe: \_\_\_\_\_

What Corrective Action Has Been/Will Be Taken To Prevent Reoccurrence? When? Who Is Responsible? Describe Fully: \_\_\_\_\_

Report Completed By (signature): \_\_\_\_\_ Date: \_\_\_\_\_

Please complete any/all sections which apply and provide as much information as possible. The goal of this investigation is determine not only the proximate cause, but the root cause, of the incident/accident, identify loss trends, implement appropriate controls and prevent reoccurrence.

Sample descriptive terms:

<u>type of accident</u>	<u>type of injury</u>	<u>part of body</u> (left, right?)
slip & fall	cut, abrasion	arm, wrist
struck by or against	bruise, contusion	hand, finger
caught in/on/between	sprain, strain	foot, toe
contact with or by	swelling, inflammation	leg, knee
lifting/pushing/pulling	puncture	head, face, neck
burn by	burn	eye
cut by	fracture	trunk
foreign object in eye	hernia	etc.
insect or animal bite	occupational illnesses	
explosion	hearing loss	
crushed	etc.	
electrical shock		
etc.		

In your description, be as specific as possible - you're painting a word picture so others can understand what happened. Provide any pertinent details about the accident type, the injury, any unsafe act or unsafe condition, the process, equipment, material or environmental conditions, any recent changes which might have contributed to the chain of events leading up to the accident, etc.

Determine what corrective actions are needed to prevent reoccurrence, and, when these changes will take place, who is responsible for the changes, etc.

**PERSONAL PROTECTIVE EQUIPMENT TRAINING CERTIFICATION**

Employee \_\_\_\_\_  
Date \_\_\_\_\_ Supervisor/Department \_\_\_\_\_

---

Employee has been trained on the following personal protective equipment (PPE)

- Hardhat
  - Eye protection (specify: safety glasses, face shields, welding shields, other)
  - Hearing protection (specify: insert, muff, supra-aural)
  - Respirators (specify: particulate, air purifying, PAPR, SCBA, SA, other)
  - Gloves
  - Safety shoes (safety toes, metatarsal)
- 

Covered topics included:

- Hazard assessment (types, location, degree of hazard)
- When PPE is required
- What PPE is required
- How to care for and store PPE
- How PPE must be worn for protection
- PPE's limitations

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Trainer Signature \_\_\_\_\_  
Date \_\_\_\_\_

Employee Signature \_\_\_\_\_  
Date \_\_\_\_\_



## PPE Hazard Assessment Form (page 2)

**Physical hazards:** pinch points; reciprocating, rotating or articulating equipment; sharp points or edges; slip, trip or fall; falling or flying objects; flammable, combustible or explosive; heat; radiation; electrical

**Chemical hazards:** vapors, gases, mists, fumes, dusts; pH; flammability (flash point), explosive; corrosive; unstable or reactive; vapor density (heavier or lighter than air); vapor pressure (volatility, rate of evaporation); need for ventilation (general dilution, local exhaust ventilation)

**Biological hazards:** blood-borne pathogens (HIV-AIDS, hepatitis, etc.), contagions (tuberculosis, etc.), insects (Rocky Mountain Spotted Fever, Lyme Disease, etc.), vermin (4 Corners Syndrome, etc.); snakes; fungus, molds, etc. (Sick Building Syndrome, Building Related Illnesses, Legionnaire's Disease)

**Ergonomic hazards:** awkward positions and postures; repetition; force; contact stress; temperature extremes; vibration

**NEW HIRE ORIENTATION / SAFETY TRAINING RECORD**

(Use to document safety training, one copy to employee, one copy to employee's file)

EMPLOYEE NAME \_\_\_\_\_

HIRE DATE \_\_\_\_\_

DEPARTMENT \_\_\_\_\_

Check and date all that apply:

- General safety rules
- Scaffolding
- Fall protection
- Department safety rules
- Workers compensation, medical provider, return to work, claims filing
- Evacuation plan, means of egress and emergency escape routes
- Progressive disciplinary program
- Back injury prevention and safe lifting techniques
- Accident reporting and investigation
- Plant inspection
- Hazard communications program (hazcom)
- Lockout/tagout (LOTO)
- Personal protective equipment (PPE)
- Respiratory protection program (RPP)
- Hearing conservation program (HCP)
- Blood-borne pathogens program (BBP)
- Permit required confined space entry program (PRCS)
- Motor vehicle record (MVR)
- Forklift operator training
- Other - **specify:** \_\_\_\_\_

Employee signature: \_\_\_\_\_

Supervisor/trainer signature: \_\_\_\_\_

---

## **BACK INJURY PREVENTION**

- L 4 out 5 (80%) Americans will suffer from back pain sometime in their lives
- L Back injuries are either acute or chronic
- L Chronic injuries tend to be cumulative trauma
- L 85%-90% of all disc herniations occur at L4-5, or L5-S1
- L Back injury prevention is related to the anatomy and physiology of the back
- L Maintain natural curves of the spine
- L Compressive loads on discs, especially at the lower back discs, can be very high, e.g., greater than 2000 #
- L Avoid lifts whenever possible, use material handling devices, carts, dollies, lifting aids, etc.; lift less - move it once; have lifts originate at waist height
- L The # 1 rule is: if it's too heavy, DON'T LIFT IT!!! Get help, use a lifting aid, but don't overload. Back works on leverage principal - each pound lifted can result in 10 pounds pressure on lower spine; forces in excess of 2000 pounds have been measured at L5-S1 !!!!

### **But, if you have to lift:**

1. Don't twist while lifting - keep feet and shoulders square
  2. Maintain natural curves of the spine
  3. Feet about shoulder width apart - sturdy footing
  4. Bend at the knees and hips
  5. Use your leg strength, not your back!
  6. Keep the load close
  7. Keep your head up - look up while lifting
  8. Use abdominal muscles to assist back muscles
  9. Use palm grip - increased grip strength
  10. Use smooth motions, avoid jerking
-

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## OFFICE ERGONOMICS

- ┌ Hazards include force, repetition, contact stress and awkward postures, the worst of which is **POSTURE!!!!** Ergonomic hazards can result in cumulative trauma disorders - be smart, you're in control, know how to adjust the components to fit **you**. Maintain neutral positions: maintain **approximate** 90 degree angles at upper-lower arms, upper-lower legs, upper-lower body. Adjust, adjust, adjust ...
- ┌ Back injury prevention is important even in office settings, so, maintain natural curves of the spine, two thirds of your weight is from the waist up and your back is working harder while you're seated than when standing!
- ┌ Line of sight should be level to minus 15 degrees from horizontal
- ┌ Orient keyboard, screen, document holder, etc., **in front of you**
- ┌ Keep work within your reach envelope
- ┌ Use wrist rests and similar items **IF** they don't create other problems
- ┌ Adjust the chair, then the work surface, then the components
- ┌ Use a footrest if needed
- ┌ Be aware of armrests - they may create awkward wrist postures
- ┌ Take short, frequent breaks: mix it up - do a number of items, avoid working at the keyboard for long, uninterrupted periods

Reduce eye strain and glare: adjust the screen, close the blinds, reduce the level of overhead lighting, place screen/line of sight parallel to fluorescent tubes; look at a distant object periodically - exercise the eyes

### *Office Safety*

1. Do not stand on furniture to reach high places. Always use a ladder or step stool.
2. Close all drawers to file cabinets after use to prevent tripping or bumping hazards.

# Progressive Disciplinary Program

A system for disciplining employees that violate our safety rules is a necessary component of our safety program. The progressive disciplinary program follows basic guidelines as to 1st, 2nd or 3rd offense.

Note that we have, beginning at hire, ongoing employee training, and all employees should be well acquainted with our rules and safety program.

Secondly, supervisors have specific safety related activities as part of their job descriptions: enforcing the rules is one such activity.

Thirdly, all employees have a duty to work safely and follow the rules - everyone's safety is at stake. It is the responsibility of all employees to learn and adhere to the procedures and policies as outlined in our safety program.

Any employee found in violation of a safety rule or guideline will be subject to disciplinary action, up to and including termination of employment. The following are generally followed guidelines for discipline:

- 1st offense: verbal warning
- 2nd offense: written warning and meeting(s) with supervisor or others as appropriate, eg, for retraining, etc.
- 3rd offense: termination

Please note: the steps listed above are our typical guidelines; at management's discretion, some violations may be deemed serious enough to warrant immediate termination on the first or second offense.

# **HEAT STRESS**

“Hey folks, the forecast calls for plenty of sun and temperatures in the high 90’s all week long. It’s gonna be HOT, HOT, HOT!”. Maybe hotter than you think. Yep, it’s that time of year again. When was the last time you talked to the crew about working in hot weather to make sure everybody understands the dangers of heat stress?

The human body is an amazing machine capable of working in many environmental conditions and under various workloads. Though we work from the cold winter months through these hot summer seasons, and everything in between, our core body temperature must remain in a very narrow range (about 99-100.5°F). Our bodies continually produce heat via metabolism. The liver, brain, heart, skeletal muscles and other organs produce heat even when we’re at rest. The skeletal muscles produce a lot of heat when we’re working. Our bodies regulate this heat in a number of ways but principally through the circulatory system and by sweating. More on that later.

Besides our body heat, we’re affected by our environment. Heat radiates from a warmer body or object to the cooler body or object. For example, when outdoors in the sun, or working near a blast furnace, or while using an arc welder, we’re subjected to radiant heat. If we’re working outdoors in frigid winter air, or in a cold storage warehouse, the air is cooler than our body and we radiate heat to the surrounding environment.

Convection is the transfer of heat via air movement - imagine the difference between trying to stay warm in a cold January wind in contrast to trying to stay cool while working with a hot and dry summer wind and the sun beating down on you!. When working in hot weather, the hot air adds to our body heat. Actually, convection is affected not only by temperature, but also by the humidity level of the air, and any air movement. Each affects the convection heat transfer process.

Conduction is the third way heat is transferred. Conduction is the direct transfer of heat between two bodies or objects, from the warmer to the cooler. Here’s an example to take your mind off the heat: it’s winter and 10 or 15 degrees below zero, you’re shoveling snow - a bunch of it - and the freezing sidewalk is sucking the warmth from your used-to-be-much-warmer-but-now-feel-like-icicle feet!, that’s conduction. It works the other way in summer when you’re working on the hot earth, concrete, etc. and heat is conducted to your body (good work boots provide insulation against this).

Our bodies are continually responding to whatever environmental conditions we’re in. If you’re strenuously working outdoors on a hot, sunny day, various forms of heat stress can affect you. As your core body temperature rises, your heart beats faster and the blood vessels near the skin surface expand to dissipate heat. You begin to sweat.

Sweating creates evaporative cooling, a very effective means of cooling. With any luck, there's a breeze and the evaporative cooling effect is increased. You're working hard but the body's temperature control system is keeping up, all is well.

Sometimes though, things get out of whack and heat stress occurs. Review the attached table describing some forms of heat stress. Share the information with your crews as a safety training topic.

Besides knowing the signs and symptoms of heat stress, it's good to think about the prevention side of things. Allow for high work demands, hot environments and if applicable, protective clothing requirements. Maybe it'd be better to break that big job up into a number of smaller tasks. Spread the tasks out through the heat of the day instead of doing the whole job at once. Or, get the heaviest tasks done in the cool of the morning instead of during the heat of the day.

Be sure there's plenty of water for the crew and remind them to take fluids in small amounts more frequently rather than large amounts less often. During heavy work and hot temperatures, fluid losses can be as high as 2 litres per hour! Take short, frequent breaks when it's hot or the work is heavy. Use a tarp to create some shade if no trees are available or sit in the shade of vehicles and equipment.

Dress in loose fitting, breathable clothing both to protect against the sun and to increase air flow (remember convection and evaporative cooling). Even if hardhats aren't required, a hat should be worn to keep the sun off the head. Make allowances in workloads and breaks when heavy protective clothing or respirators are required.

And don't let new crew members hurt themselves. It can take 5-14 days to get acclimated to strenuous work in hot environments. A proper diet and fluid intake can go a long way in preventing heat stress. So can staying in shape and avoiding excess alcohol (drinking can cause dehydration!). You can't control the weather, but you can control the jobs, the working conditions to some degree, as well as the workers and how each is prepared for the work at hand. Don't let the heat get you down!

## Some forms of heat stress, from less to more severe:

<u>Disorder</u>	<u>Symptoms</u>	<u>1st Aid</u>	<u>Prevention</u>
heat cramps	muscle cramps, pain	rest lying on back in shade, drink fluids	acclimate, proper diet & fluid intake
heat syncope	blurred vision, fainting, caused by blood pooling and static muscle loading and infrequent movement	Same	same plus regular body movement to prevent pooling of blood
dehydration	fatigue, loss of work capacity due to excess fluid loss	Same	acclimate, proper diet & fluid intake, avoid alcohol
Heat exhaustion	fatigue, blurred vision, dizziness, headache, weakness, high pulse rate, profuse sweating, low blood pressure	same, loosen clothing	same, increase fitness & conditioning
heat stroke	chills, shivering, irritability, red face, hot/dry skin, disorientation, loss of consciousness, convulsions	<b>immediate medical attention req'd to effect aggressive cooling,</b>	all of above

## **Hearing Protection is for Everyone!**

Why? Everyone is exposed to loud noise at some time in their lives—even babies! Lawn mowing, fitness classes, truck and tractor pulls, airplanes, table saws, rock concerts, snowmobiles—all these environments can be too loud.

The decibel is a unit used to express sound level, and “loud noise” means sounds that are more than 80 decibels. Loud noise can be very hazardous to your health and particularly to your hearing. Over time, exposure to loud sounds on a regular basis can result in permanent hearing loss. You often don’t know you have the hearing problem until it is too late to do anything about it. Sudden, VERY loud noises, like explosions, can cause instant hearing loss.

Why is hearing loss a problem? Imagine being cut off from all the things that are important to you—friends, family, TV, radio, MUSIC! It’s not a comforting thought. When you’re born, your hearing is as good as it will ever be, so you need start protecting it as soon as you can. Hearing loss due to loud noise is preventable, but it is NOT treatable once you have it.

So what kind of hearing protection should I wear? Either earplugs or earmuffs are fine. For noise exposure outside of the workplace, most types sold in safety stores or hardware stores will block out enough noise to protect your hearing. Pick a style that you like the look of and feels comfortable to wear. Really, what’s the BEST hearing protector? The best hearing protector is one that you will want to wear for the entire time you’re exposed to noise.

How should they fit? Earplugs should fit snugly in your ear canal and someone looking at you should have a hard time seeing them. If they stick out too far, they’re not blocking sound. Earmuffs should fit close to your head, with no gaps. There is another style of hearing protector called the “banded” earplug—it’s an earplug (that can go into the ear canal or sit over it) on a headband. NOTE: children less than 12 years of age should not wear earplugs, except where prescribed by a doctor or certified audiologist. Earmuffs or banded plugs that do NOT go into the ear canal are o.k.

How long do they last? Foam (“disposable”) earplugs will last for about 10 wearings; other earplugs will last about 1 year. The custom molded type, made of medical silicone, will last about 3-4 years. Earmuffs will last about 4-5 years, but you must replace the cuff (the part that sits right on your skin) every year. The oils and sweat from your skin will make the plastic of the cuff deteriorate.

## THE ABC'S OF FIRE EXTINGUISHERS

Just as there is a right tool for every job, there is a right extinguisher for every fire. The class of an extinguisher, identified on its nameplate, corresponds to the class or classes of fire the extinguisher controls. On most construction jobs, we are concerned with Class A, B and C fires. Consequently, the best extinguisher to have on a job is a multi-purpose Class ABC extinguisher, which contains a dry, powdered chemical under pressure. The following describes the classes of fire and the kind of extinguisher that can be used on each.

### **CLASS A FIRES**

Wood, paper, trash, and other materials that have glowing embers when they burn. Extinguisher to Use: For Class A fires, use a Class A or Class ABC extinguisher. Always remember that a Class A extinguisher contains water and should be used only on a Class A fire. Used on gasoline, it can spread the fire; used on electrical fires, it can cause you to be electrocuted.

### **CLASS B FIRES**

These are fires involving flammable liquids and gases, such things as gasoline, solvents, paint thinners, grease, LPG, and acetylene. Extinguisher to Use: Use Class B or Class ABC extinguishers.

### **CLASS C FIRES**

These are fires in energized electrical equipment. Extinguisher to Use: Use a Class BC or Class ABC extinguisher.

### **SOME IMPORTANT POINTS TO REMEMBER**

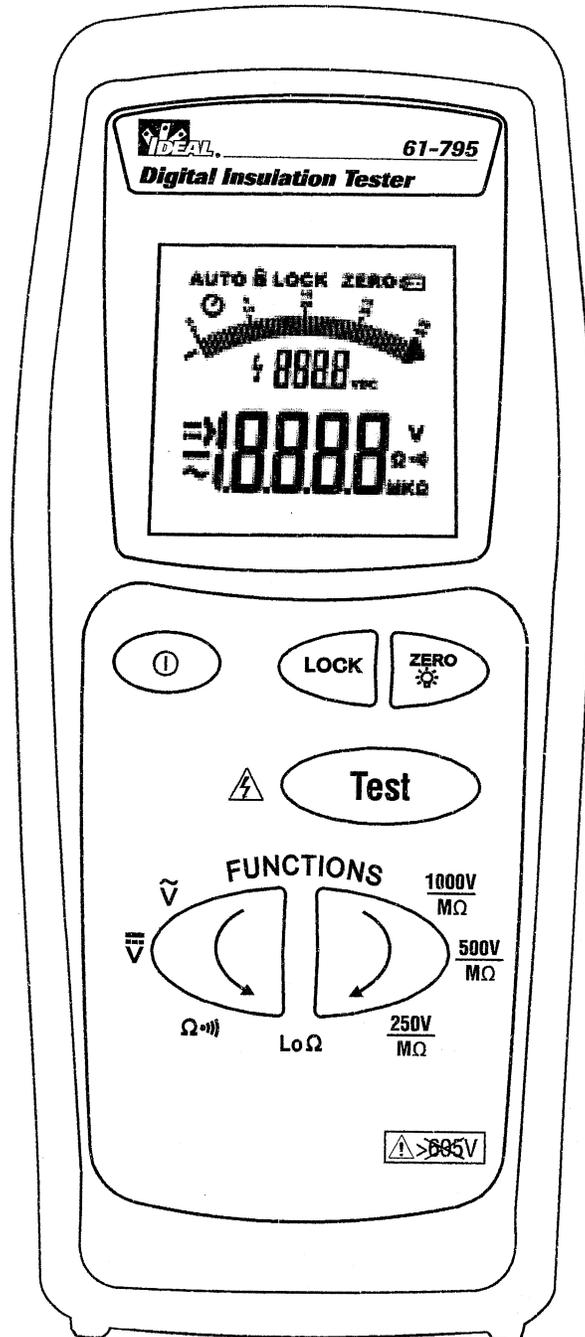
1. Use the fire extinguisher whose class corresponds to the class of the fire.
2. Never use a Class A extinguisher, which contains water or foam, on a liquid or electrical fire.
3. Know where extinguishers are located and how to use them. Follow the directions printed on the label.
4. Keep the area around the fire extinguisher clear for easy access.
5. Don't hide the extinguisher by hanging coats, rope, or other materials on it.
6. Take care of the extinguishers just as you do your tools.
7. Never remove tags from extinguishers. They indicate the last time the extinguisher was serviced and inspected.
8. Report defective or suspect extinguishers to your Supervisor, so that they can be replaced or repaired.
9. When inspecting extinguishers, look for cracked hoses, plugged nozzles, and corrosion. Also, look for damage that may have been done by equipment running into the extinguishers.
10. Don't use extinguishers for purposes other than fighting fires.



#61-795

# Insulation Tester

## Instruction Manual



 **Read First: Safety Information**

Understand and follow operating instructions carefully. If this tester is not used in a manner specified by IDEAL, protection provided by the product may be impaired.

 **WARNINGS**

To avoid possible electric shock, personal injury or death follow these instructions:

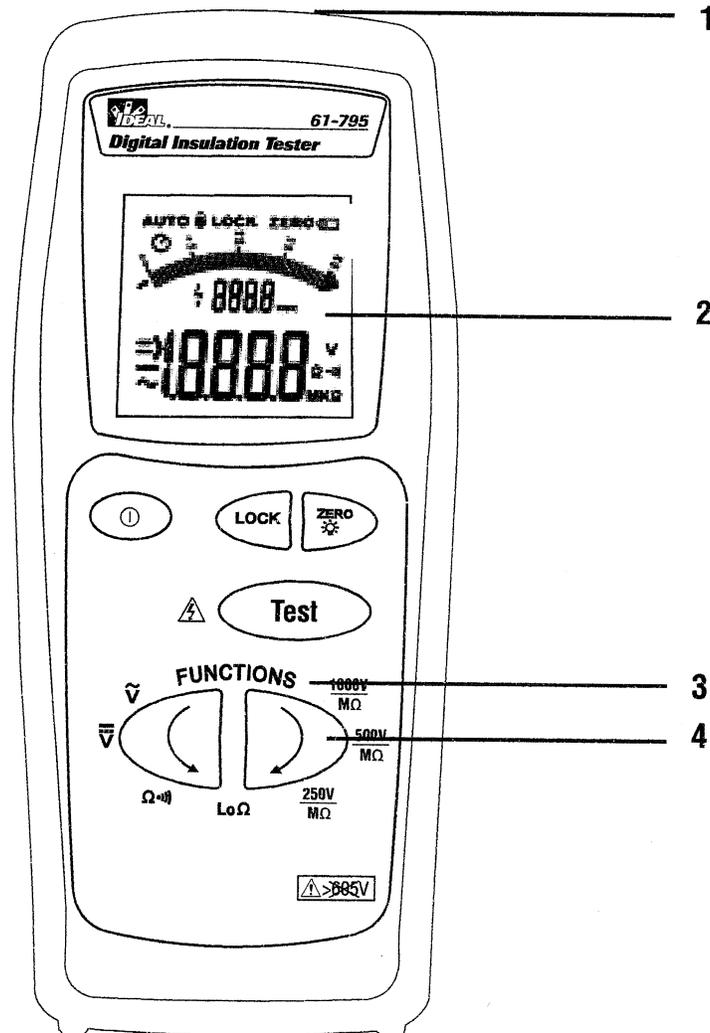
- Do not use if meter appears damaged.
- Visually inspect the meter to ensure case is not cracked and back case is securely in place.
- Inspect and replace leads if insulation is damaged, metal is exposed, or probes are cracked. Pay particular attention to the insulation surrounding the connector.
- Do not use meter if it operates abnormally as protection maybe impaired.
- Do not use during electrical storms or in wet weather.
- Do not use around explosive gas, dust, or vapor.
- Do not apply more than the rated voltage to the meter.
- Do not use without the battery and the back case properly installed.
- Remove the test leads from the meter before removing battery cap.
- Do not attempt to repair this unit as it has no user-serviceable parts.
- Disconnect power and discharge capacitors before testing resistance, continuity or insulation.
- Replace battery as soon as low battery indicator  appears to avoid false readings.
- Use the proper terminals, function and range for your measurements.
- Use care as this tester outputs a high voltage to measure insulation resistance.
- Comply with local and national safety requirements, including the use of appropriate personal protective equipment.

To protect yourself, think "Safety First":

- Voltages exceeding 30VAC or 60VDC pose a shock hazard so use caution.
- Use appropriate personal protective equipment such as safety glasses, face shields, insulating gloves, insulating boots, and/or insulating mats.
- Before each use:
  - Perform a continuity test by touching the test leads together to verify the functionality of the battery and test leads.
  - Use the 3 Point Safety Method. (1) Verify meter operation by measuring a known voltage. (2) Apply meter to circuit under test. (3) Return to the known live voltage again to ensure proper operation.

- Never ground yourself when taking electrical measurements.
- Connect the black common lead to ground or neutral before applying the red test lead to voltage. Disconnect the red test lead from the voltage first.
- Always work with a partner.
- When using the probes, keep fingers as far behind the probe tips as possible.

## Instrument - Description



### Feature Callouts

1. **Inputs** - for inserting test leads.
2. **Display**
  - **AUTO** – indicates autoranging mode.
  - **LOCK** – indicates a test lock for the next time the TEST button is depressed.
  - **ZERO** – indicates test leads have been nulled.
  -  – indicates auto power off (APO) occurs 15 minutes after last button is depressed. To defeat APO, press the LOCK key.

-  - indicates batteries should be replaced to avoid false readings.
- Analog Bar Graph – simulates an analog needle movement.
-  – indicates when insulation test is active.
- **V Ω •) MKΩ** – measurement units.

### 3. Functions

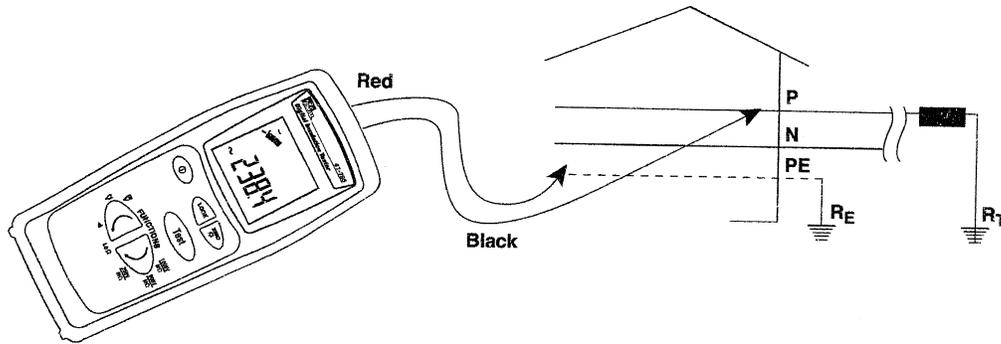
- **VAC** – AC voltage from 0.1 – 600.0V.
- **VDC** – DC voltage from 0.1 – 600.0V.
- **Ω / •))** – Ohms and audible continuity from 0.1 – 199.9.
- **Lo Ω** – Ohms from 0.01 – 19.99 Ω.
- **250V/500V/1000V /M Ω** – Insulation test voltages / range: 0.001 – 4000M Ω.

### 4. Buttons

-  – turns tester's power on/off.
-  – defeats APO and sets time period while in insulation testing mode.
-  – turns backlight on for 30 seconds and nulls the test leads while in ohms or Lo ohms mode.
-  – starts insulation testing.
-  – selects functions in a counter-clockwise direction.
-  – selects functions in a clockwise direction.

## Voltage - AC/DC

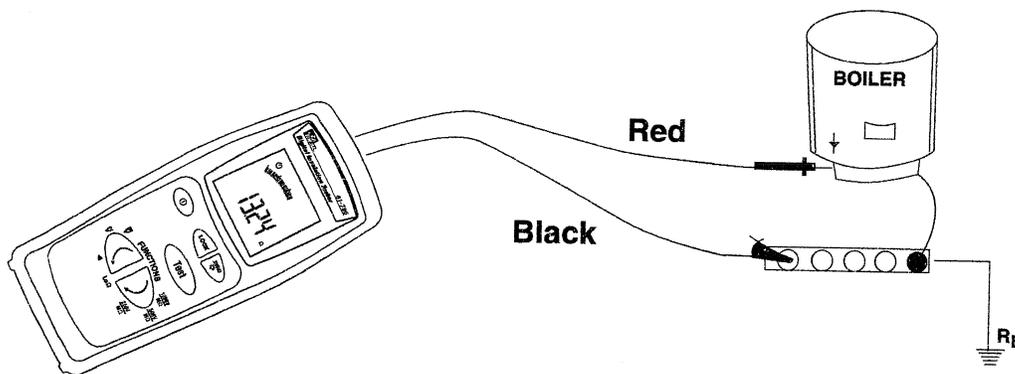
1. Press  to turn on the instrument
2. The meter defaults to VAC ( $\tilde{V}$ ).
  - To select VDC ( $\bar{V}$ ), press  once.
3. Insert test leads into the corresponding input terminals.
4. Connect the leads to the circuit under test. The voltage value is displayed.



## Resistance ( $\Omega$ )/Continuity (•))

1.  Turn on the instrument.
2. Press  two times to select  $\Omega$ /(•)).
3. Insert test leads into the corresponding input terminals.
4. Apply test leads to de-energized circuit and press  to perform the measurement.
5. Apply test leads:
  - The ohms value is displayed.
  - If  $<30\Omega$ , continuity beeper also sounds.

Note: Press  and  to perform measurements in continuous mode. LOCK is displayed and APO is defeated.



For higher accuracy and resolution:

- Press  to select Lo $\Omega$  (0.00 - 19.99 $\Omega$ ).
- Null (ZERO) test leads by touching test lead tips tightly together. Press  >2 sec. The resistance of the leads is now subtracted from pending measurements until  is pressed again.
- Repeat steps 3 - 5 to take resistance measurements.

## Insulation Resistance

1. Press  to turn on the instrument.
2. Press  to select 1000V, 500V, or 250V test voltage.
3. Insert the test leads in the corresponding input terminals of the instrument.
4. Disconnect the circuit under test from power and isolate all eventual loads.
5. Apply leads to wiring under test.

6A. To run a timed test:

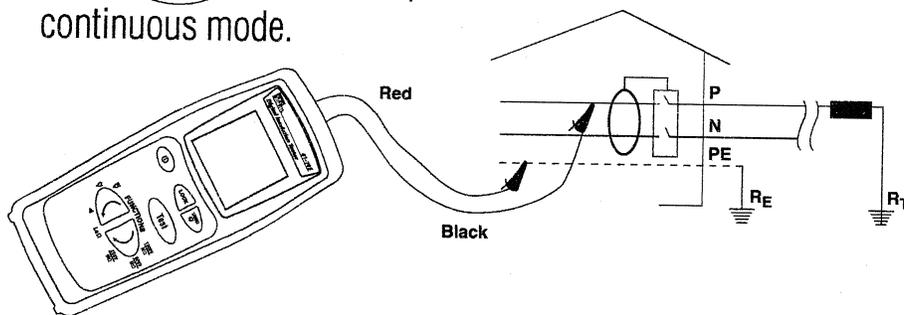
- Hold  for 2s.
- Then, use   to select time from 30 seconds to 10 minutes. (Default is (S) spot test.)
- Press  to confirm selection.
- Press  to start the insulation testing.

The last megohm reading is displayed. Keep the leads on the test points to allow the circuit to discharge.

- To perform the same timed test again, press  .
- To exit the timed test, hold  for 2s, then use   to select S, then press  . The unit can now be navigated to any function using the   buttons.

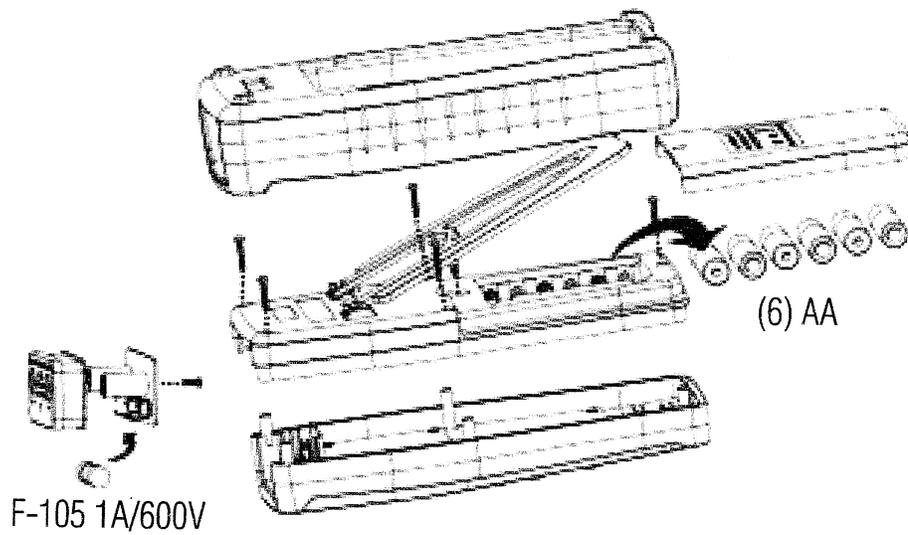
6B. To run a continuous test:

- Press  and  at the same time. Lock is displayed and unit beeps.
- Press  again to stop continuous mode.



 **Warning:** The  symbol on the display means that the instrument is charging the circuit. When the  symbol is flashing on the display, the instrument is discharging the circuit. Both of these indicate a shock hazard is present.

## Battery & Fuse Replacement



**⚠ WARNING:** To avoid electric shock, disconnect test leads before removing battery cover.

**⚠ WARNING:** For continued protection against fire, replace only with fuse of the specified voltage, current and rupture speed ratings.

## Ranges & Accuracies

**AC Converter:** 61-795 model is averaging sensing, rms calibrated

**Accuracy:** Accuracy is specified as +/- (a percentage of the reading + a fixed amount) at 23°C ± 5°C (73.4°F ± 9°F), less than 75% relative humidity.

**Temperature Coefficient:** 0.1 times the applicable accuracy specification from 32°F to 64°F and 82°F to 122°F (0°C to 18°C ; 28°C to 50°C).

Function	Range	Accuracy	Overload Protection	
DC Voltage	0.1 - 600.0V	±(0.5% + 1)	600V AC RMS max	
AC Voltage	0.1 - 600.0V	±(0.8% + 4)	600V AC RMS max	
Resistance	0.1 - 199.9Ω	±(2.0% + 3)	600V AC RMS max for 1 minute	
Continuity*	0.01 - 19.99Ω	±(2.0% + 3)	600V RMS max	
Insulation Resistance**	0.001 - 0.100MΩ	±10	600V RMS max	
	0.101 - 3.999MΩ	±(2.0% + 5)		
	4.00 - 39.99MΩ			
	40.0 - 399.9MΩ	±(5.0% + 5)		
	400 - 1000MΩ			
	250V	0.001 - 0.250MΩ		±15
		0.251 - 3.999MΩ		±(2.0% + 5)
		4.00 - 39.99MΩ		
		40.0 - 399.9MΩ		
		400 - 2000MΩ		±(5.0% + 5)
500V	0.001 - 0.250MΩ	±15		
	0.251 - 3.999MΩ	±(2.0% + 5)		
	4.00 - 39.99MΩ			
	40.0 - 399.9MΩ			
	400 - 1000MΩ	±(3.0% + 5)		
	1000 - 4000MΩ	±(5.0% + 10)		
1000V	0.001 - 0.250MΩ	±15		
	0.251 - 3.999MΩ	±(2.0% + 5)		
	4.00 - 39.99MΩ			
	40.0 - 399.9MΩ			
	400 - 1000MΩ	±(3.0% + 5)		
	1000 - 4000MΩ	±(5.0% + 10)		

\*Continuity test current > 200mA @ R<5Ω and open circuit voltage (4-24VDC) per EN 61557-2/VDE 0413 Part 4.

\*\*Auto Ranging. Open circuit voltage: <1.3 x V<sub>0</sub>. Accuracy of nominal voltage: 0% to +10%. Short circuit current: <3.0mA. Nominal testing current: 1mA @ 1kΩ x V (1mA @ 500kΩ)

## Maintenance

Clean the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

## Service and Replacement Parts

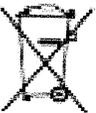
No user-serviceable parts.

For replacement parts or to inquire about service information, contact IDEAL INDUSTRIES, INC. at 1-877-201-9005 or visit our website @ [www.testersandmeters.com](http://www.testersandmeters.com).



### Dispose of waste electrical and electronic equipment

In order to preserve, protect and improve the quality of environment, protect human health and utilize natural resources prudently and rationally, the user should return unserviceable product to relevant facilities in accordance with statutory regulations. The crossed-out wheeled bin indicates the product needs to be disposed separately and not as municipal waste.



### Disposal of used batteries/accumulators!

The user is legally obliged to return used batteries and accumulators. Disposing used batteries in the household waste is prohibited! Batteries/accumulators containing hazardous substances are marked with the crossed-out wheeled bin. The symbol indicates that the product is forbidden to be disposed via the domestic refuse. The chemical symbols for the respective hazardous substances are **Cd** = Cadmium, **Hg** = Mercury, **Pb** = Lead.



You can return used batteries/accumulators free of charge to any collecting point of your local authority, our stores, or where batteries/accumulators are sold. Consequently you comply with your legal obligations and contribute to environmental protection.

## Specifications

### General Features

<b>Display:</b>	9999 Count/4" LCD
<b>Refresh Rate:</b>	2.0x/sec.
<b>Over range:</b>	"OL" is displayed
<b>Polarity:</b>	Automatic (no indication for positive polarity); Minus(-) sign for negative polarity
<b>Auto Power Off:</b>	After 15 minutes of non-use
<b>Low Battery:</b>	 is displayed if battery voltage drops below operating voltage
<b>Altitude:</b>	6561.7 ft. (2000m)
<b>Accuracy:</b>	Stated accuracy at 73° ±41°F (23° ±5°C), < 70% R.H.
<b>Batteries:</b>	(6) 1.5V AA LR6
<b>Battery Life:</b>	50 hrs./1000 tests @ 1000V/480kΩ
<b>Fuse:</b>	1A/600V (#F-105)
<b>Operating environment:</b>	32° to 104°F (0° to 40°C) at < 75% R.H.
<b>Storage environment:</b>	-14° to 140°F (-10° to 60°C) at < 80% R.H.
<b>Weight:</b>	15.9 oz (450g)
<b>Size:</b>	9.4"H x 3.9"W x 1.8"D (240mmHx100mmWx45mmD)
<b>Accessories Included:</b>	Test leads (TL-795), (6) AA batteries Operating Instructions
<b>Safety Certification:</b>	Complies with UL/IEC/EN 61010-1, 61010-031, EN61557, EN 61326-1 +1A (EMC), Cat III-1000V/ Cat IV-600V



### **Equipment protected by double insulation.**

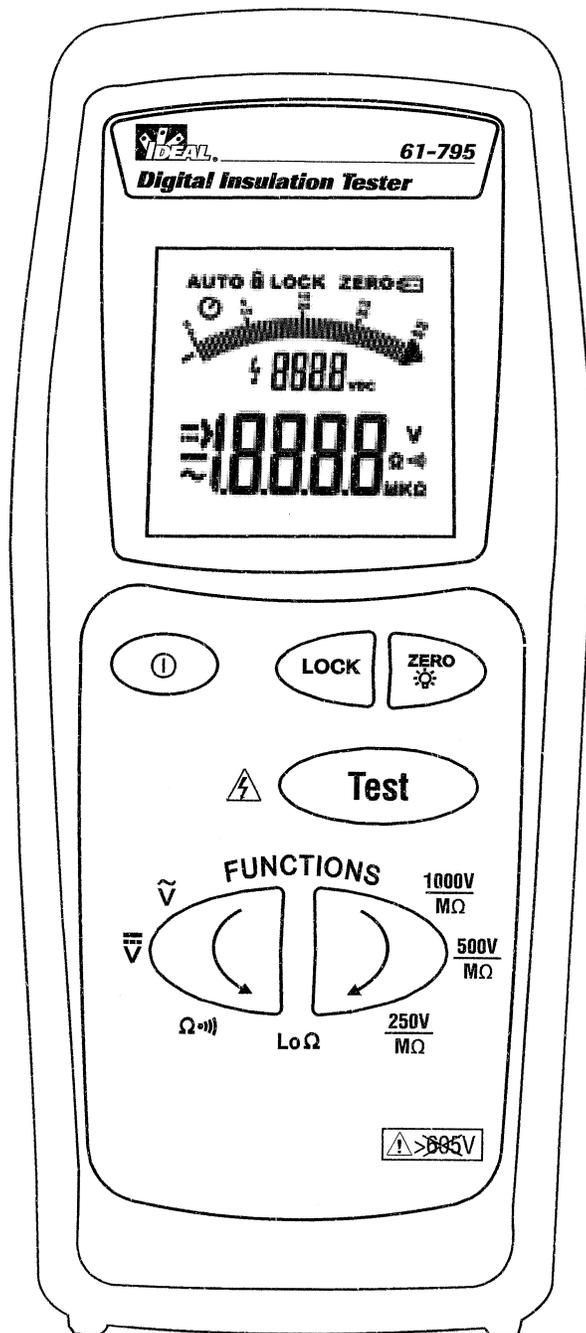
Instrument has been evaluated and complies with insulation (overvoltage) category IV. Pollution degree 2 in accordance with IEC-644. Indoor use.



#61-795

# Insulation Tester

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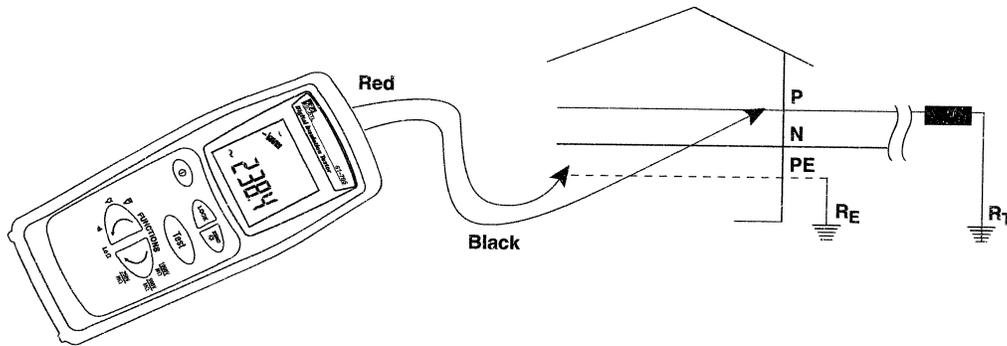
- **VAC** – AC voltage from 0.1 – 600.0V.
- **VDC** – DC voltage from 0.1 – 600.0V.
- **Ω / •))** – Ohms and audible continuity from 0.1 – 199.9.
- **Lo Ω** – Ohms from 0.01 – 19.99 Ω.
- **250V/500V/1000V /M Ω** – Insulation test voltages / range: 0.001 – 4000M Ω.

### 4. Buttons

-  – turns tester's power on/off.
-  – defeats APO and sets time period while in insulation testing mode.
-  – turns backlight on for 30 seconds and nulls the test leads while in ohms or Lo ohms mode.
-  – starts insulation testing.
-  – selects functions in a counter-clockwise direction.
-  – selects functions in a clockwise direction.

## Voltage - AC/DC

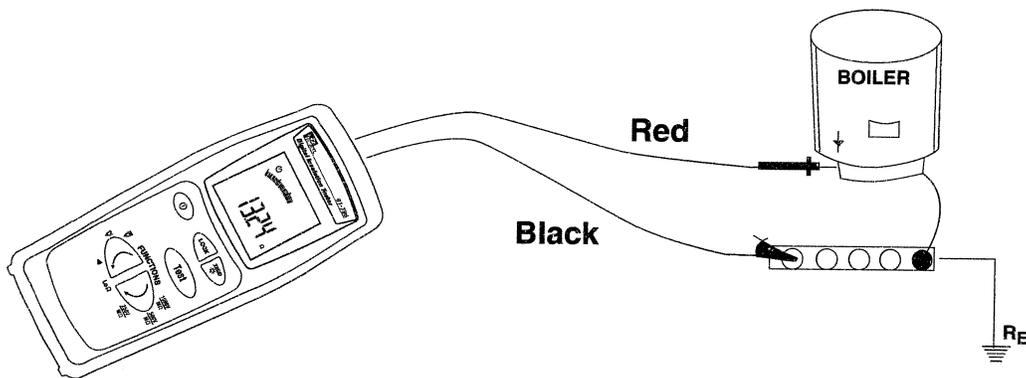
1. Press  to turn on the instrument
2. The meter defaults to VAC ( $\tilde{V}$ ).
  - To select VDC ( $\bar{V}$ ), press  once.
3. Insert test leads into the corresponding input terminals.
4. Connect the leads to the circuit under test. The voltage value is displayed.



## Resistance ( $\Omega$ )/Continuity (•))

1.  Turn on the instrument.
2. Press  two times to select  $\Omega$ /(•)).
3. Insert test leads into the corresponding input terminals.
4. Apply test leads to de-energized circuit and press  to perform the measurement.
5. Apply test leads:
  - The ohms value is displayed.
  - If  $<30\Omega$ , continuity beeper also sounds.

Note: Press  and  to perform measurements in continuous mode. LOCK is displayed and APO is defeated.



For higher accuracy and resolution:

- Press  to select Lo $\Omega$  (0.00 - 19.99 $\Omega$ ).
- Null (ZERO) test leads by touching test lead tips tightly together. Press  >2 sec. The resistance of the leads is now subtracted from pending measurements until  is pressed again.
- Repeat steps 3 - 5 to take resistance measurements.

## Insulation Resistance

1. Press  to turn on the instrument.
2. Press  to select 1000V, 500V, or 250V test voltage.
3. Insert the test leads in the corresponding input terminals of the instrument.
4. Disconnect the circuit under test from power and isolate all eventual loads.
5. Apply leads to wiring under test.

6A. To run a timed test:

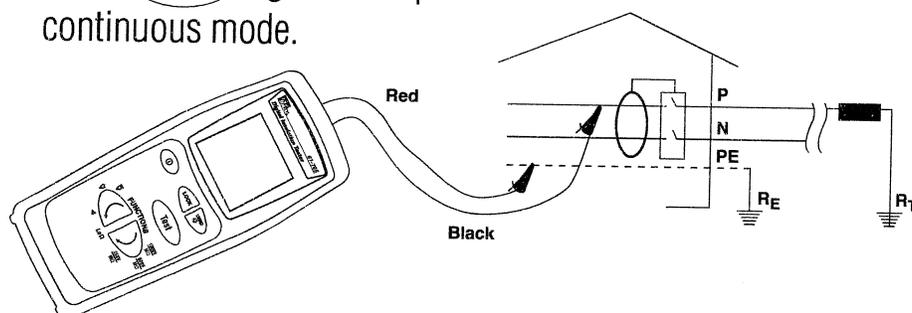
- Hold  for 2s.
- Then, use   to select time from 30 seconds to 10 minutes. (Default is (S) spot test.)
- Press  to confirm selection.
- Press  to start the insulation testing.

The last megohm reading is displayed. Keep the leads on the test points to allow the circuit to discharge.

- To perform the same timed test again, press  .
- To exit the timed test, hold  for 2s, then use   to select S, then press  . The unit can now be navigated to any function using the   buttons.

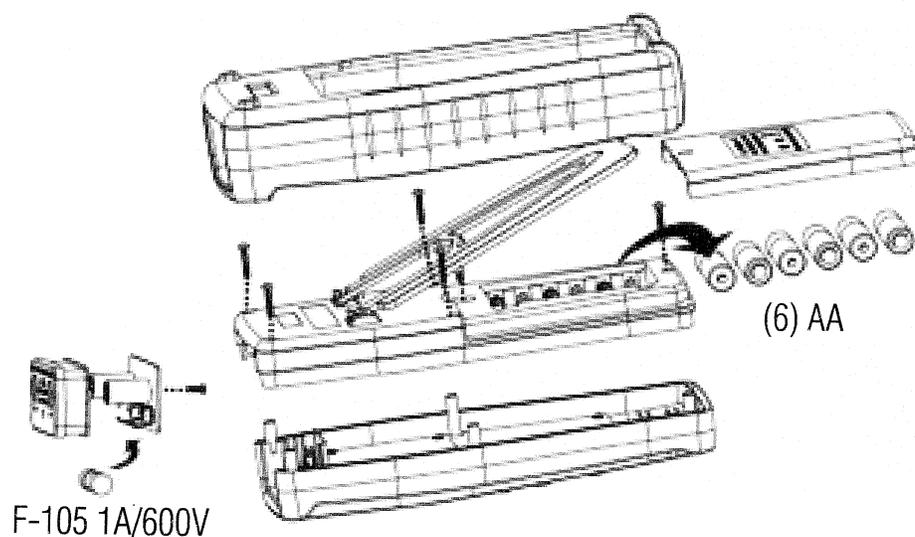
6B. To run a continuous test:

- Press  and  at the same time. Lock is displayed and unit beeps.
- Press  again to stop continuous mode.



 **Warning:** The  symbol on the display means that the instrument is charging the circuit. When the  symbol is flashing on the display, the instrument is discharging the circuit. Both of these indicate a shock hazard is present.

## Battery & Fuse Replacement



**! WARNING:** To avoid electric shock, disconnect test leads before removing battery cover.

**! WARNING:** For continued protection against fire, replace only with fuse of the specified voltage, current and rupture speed ratings.

## Ranges & Accuracies

**AC Converter:** 61-795 model is averaging sensing, rms calibrated

**Accuracy:** Accuracy is specified as +/- (a percentage of the reading + a fixed amount) at 23°C±5°C (73.4°F ± 9°F), less than 75% relative humidity.

**Temperature Coefficient:** 0.1 times the applicable accuracy specification from 32°F to 64°F and 82°F to 122°F (0°C to 18°C ; 28°C to 50°C).

Function	Range	Accuracy	Overload Protection
DC Voltage	0.1 - 600.0V	±(0.5% +1)	600V AC RMS max
AC Voltage	0.1 - 600.0V	±(0.8% + 4)	600V AC RMS max
Resistance	0.1 - 199.9Ω	±(2.0% + 3)	600V AC RMS max for 1 minute
Continuity*	0.01 - 19.99Ω	±(2.0% + 3)	600V RMS max
Insulation Resistance**	0.001 - 0.100MΩ	±10	600V RMS max
	0.101 - 3.999MΩ	±(2.0% +5)	
	4.00 - 39.99MΩ		
	40.0 - 399.9MΩ	±(5.0% +5)	
	400 - 1000MΩ		
250V	0.001 - 0.250MΩ	±15	
	0.251 - 3.999MΩ	±(2.0% +5)	
	4.00 - 39.99MΩ		
	40.0 - 399.9MΩ		
	400 - 2000MΩ	±(5.0% +5)	
500V	0.001 - 0.250MΩ	±15	
	0.251 - 3.999MΩ	±(2.0% +5)	
	4.00 - 39.99MΩ		
	40.0 - 399.9MΩ		
	400 - 1000MΩ	±(3.0% +5)	
	1000 - 4000MΩ	±(5.0% +10)	

\*Continuity test current > 200mA @ R<5Ω and open circuit voltage (4-24VDC) per EN 61557-2/VDE 0413 Part 4.

\*\*Auto Ranging. Open circuit voltage: <1.3 x V<sub>0</sub>. Accuracy of nominal voltage: 0% to +10%. Short circuit current: <3.0mA. Nominal testing current: 1mA @ 1kΩ x V (1mA @ 500kΩ)

## Maintenance

Clean the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

## Service and Replacement Parts

No user-serviceable parts.

For replacement parts or to inquire about service information, contact IDEAL INDUSTRIES, INC. at 1-877-201-9005 or visit our website @ [www.testersandmeters.com](http://www.testersandmeters.com).



### Dispose of waste electrical and electronic equipment

In order to preserve, protect and improve the quality of environment, protect human health and utilize natural resources prudently and rationally, the user should return unserviceable product to relevant facilities in accordance with statutory regulations. The crossed-out wheeled bin indicates the product needs to be disposed separately and not as municipal waste.



### Disposal of used batteries/accumulators!

The user is legally obliged to return used batteries and accumulators. Disposing used batteries in the household waste is prohibited! Batteries/accumulators containing hazardous substances are marked with the crossed-out wheeled bin. The symbol indicates that the product is forbidden to be disposed via the domestic refuse. The chemical symbols for the respective hazardous substances are **Cd** = Cadmium, **Hg** = Mercury, **Pb** = Lead.



You can return used batteries/accumulators free of charge to any collecting point of your local authority, our stores, or where batteries/accumulators are sold. Consequently you comply with your legal obligations and contribute to environmental protection.

## Specifications

### General Features

<b>Display:</b>	9999 Count/4" LCD
<b>Refresh Rate:</b>	2.0x/sec.
<b>Over range:</b>	"OL" is displayed
<b>Polarity:</b>	Automatic (no indication for positive polarity); Minus(-) sign for negative polarity
<b>Auto Power Off:</b>	After 15 minutes of non-use
<b>Low Battery:</b>	 is displayed if battery voltage drops below operating voltage
<b>Altitude:</b>	6561.7 ft. (2000m)
<b>Accuracy:</b>	Stated accuracy at 73° ±41°F (23° ±5°C), < 70% R.H.
<b>Batteries:</b>	(6) 1.5V AA LR6
<b>Battery Life:</b>	50 hrs./1000 tests @ 1000V/480kΩ
<b>Fuse:</b>	1A/600V (#F-105)
<b>Operating environment:</b>	32° to 104°F (0° to 40°C) at < 75% R.H.
<b>Storage environment:</b>	-14° to 140°F (-10° to 60°C) at < 80% R.H.
<b>Weight:</b>	15.9 oz (450g)
<b>Size:</b>	9.4"H x 3.9"W x 1.8"D (240mmHx100mmWx45mmD)
<b>Accessories Included:</b>	Test leads (TL-795), (6) AA batteries Operating Instructions
<b>Safety Certification:</b>	Complies with UL/IEC/EN 61010-1, 61010-031. EN61557, EN 61326-1 +1A (EMC), Cat III-1000V/ Cat IV-600V



### **Equipment protected by double insulation.**

Instrument has been evaluated and complies with insulation (overvoltage) category IV. Pollution degree 2 in accordance with IEC-644. Indoor use.

## **Warranty Statement**

This tester is warranted to the original purchaser against defects in material and workmanship for two years from the date of purchase. During this warranty period, IDEAL INDUSTRIES, INC. will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.

This warranty does not cover fuses, batteries or damage from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument.

Any implied warranties arising out of the sale of an IDEAL product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. The manufacturer shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss.

State laws vary, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## Safety Manual Addendum

### *Scaffolds*

1. Follow the manufacturer's instructions when erecting the scaffold.
2. Do not work or climb on scaffolds that wobble or lean to one side.
3. Do not work on scaffolds outside during stormy or windy weather.
4. Initially inspect scaffold prior to mounting. Do not use a scaffold if any pulley, block, hook, or fitting is visibly worn, cracked, rusted or otherwise damaged. Do not use a scaffold if any rope is frayed, torn or visibly damaged.
5. Do not use any scaffold tagged "Out of Service".
6. Do not use unstable objects such as barrels, boxes, loose brick or concrete blocks to support scaffolds or planks.
7. Do not use a scaffold unless guardrails and all flooring are in place.
8. Level the scaffold after each move. Do not extend adjusting leg screws more than 12 inches.
9. Do not walk or work beneath a scaffold unless a wire mesh has been installed between the mid-rail and the toe-board or planking.
10. Use safety belts and lanyards when working from scaffolds that are higher than 10 feet and that do not have top and mid-guard rails.
11. Do not climb the cross braces for access to the scaffold. Use the ladder.
12. Do not jump from, to or between scaffolding.
13. Do not slide down cables, ropes or guys used for bracing.
14. Keep both feet on the decking. Do not sit or climb on the guardrails.
15. Do not lean out from the scaffold. Do not rock the scaffold.
16. Keep the scaffold free of scraps, loose tools, tangled lines and other obstructions.
17. Do not throw anything "overboard" unless a spotter is available. Use debris chutes or lower things by hoist or by hand.
18. Do not move a mobile scaffold with anyone on the scaffold.
19. Lock and chock wheels on rolling scaffolds before using.

## *Power Tools*

1. Do not use power equipment or tool on which you have not been trained.
2. Keep power cords away from the path of drills, saws, vacuum cleaners, floor polishers, mowers, slicers, knives, grinders, irons and presses.
3. Do not carry plugged-in equipment or tools with your finger on the switch.
4. Do not carry equipment or tools by the cord.
5. Disconnect the tool from the outlet by pulling the plug, not the cord.
6. Turn the tool off before plugging or unplugging it.
7. Do not leave tools that are "On" unattended.
8. Do not handle or operate electrical tools when your hands are wet or when you are standing on a wet floor.
9. Do not operate spark inducing tools near containers labeled "Flammable" or in an explosive environment.
10. Turn off electrical tools and disconnect the power source from the outlet before attempting repairs or service work. Tag the tool "Out of Service".
11. Do not connect multiple electrical cords in a single outlet.
12. Do not run extension cords through doorways, through holes in ceilings, walls or floors.
13. Do not drive over, drag, step on or place objects on cords.
14. Do not operate a power hand tool or portable appliance with the two-pronged adapter or a two conductor extension cord.
15. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
16. Never operate a power hand tool or portable appliance while holding a part of the metal casing or holding the extension cord in your hand. Hold all portable power tools by the plastic handgrips or other nonconductive areas designed for gripping purposes.
17. Do not operate a power hand tool or portable appliance that has a frayed, worn, cut, improperly spliced or damaged power cord.
18. Never operate electrical equipment barefooted. Wear rubber-soled or insulated work boots.
19. Do not operate a power hand tool or portable appliance if the ground pin from the three pronged power plug is missing or has been removed.

### *Powder Actuated Tools*

1. Only employer-authorized personnel, with a valid certification card may operate powder actuated tools.
2. Wear safety glasses, goggles or face shields when operating powder actuated tools.
3. Wear ear plugs or earmuffs when making fastenings.
4. Do not permit bystanders in the area when using a powder actuated tool.
5. Do not load tool until ready to make a fastening.
6. Keep tool pointed in a safe direction (away from personnel).
7. Post sign alerting co-workers that a powder actuated tool is being used.
8. After use, lock powder actuated tools and powder loads in a container and store in a safe place such as a locker or the trunk of a car.

### *Hand Tools*

1. Use tied-off containers to keep tools from falling off of scaffolds and other elevated work platforms.
2. Keep blades of all cutting tools sharp.
3. Carry all sharp tools in sheaths or holsters.
4. Tag worn, damaged or defective tools "Out of Service" and do not use them.
5. Do not use a tool if its handle has splinters, burrs, cracks, splits, or if the head of the tool is loose.
6. Do not use impact tools that have mushroomed heads.
7. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
8. Do not chop at heights above your head when working with a hand axe.
9. Do not carry sharp or pointed hand tools in your pockets unless it is sheathed.
10. Do not perform "make-shift" repairs to tools.
11. Do not use "cheaters" on load binders or "boomers".
12. Do not carry tools in your hand when climbing. Carry tools in tool belts or hoist the tools to the work area with a hand line.
13. Do not throw tools from one location to another, from one employee to another, from scaffolds or other platforms.

### *Lifting Procedures*

1. Plan the move before lifting; removing obstructions from your chosen pathway.
2. Test the weight of the load before lifting by pushing the load along its resting surface.
3. If the load is too heavy or bulky, use lifting and carrying aids such as hands trucks, dollies, pallet jacks and carts, or ask for assistance from a co-worker.
4. If assistance is required to perform a lift, coordinate and communicate your movements with those of your co-worker.
5. Position your feet 6 to 12 inches apart with one foot slightly in front of the other.
6. Face the load.
7. Bend at the knees, not the back.
8. Keep your back straight.
9. Get a firm grip on the object with your hands and fingers. Use handles when present.
10. Never lift anything if your hands are greasy or wet.
11. Wear protective gloves when lifting objects with sharp corners or jagged edges.
12. Hold objects as close to your body as possible.
13. Perform lifting movements smoothly and gradually; do not jerk the load.
14. If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.
15. Set down the objects in the same manner as you picked them up, except in reverse.
16. Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.
17. Slide materials to the end of the tailgate before attempting to lift them off a pick-up truck. Do not lift over the walls of tailgate of the bed.

### *Stairways, Floors and Openings*

1. Do not work on open sided floors, elevated walkways or elevated platforms if there are no guardrails in place.
2. Stand clear of floor openings if guardrails or covers are removed or displaced.
3. If you find an open sided area or floor openings without guardrails or covers, notify the General Contractor of any holes or deficiency immediately.

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## WESTERN STATES FIRE PROTECTION



1100 Old Highway 8 NW  
New Brighton, MN 55112  
Phone: 651.636.4320  
Fax: 651.925.8560

Date: May 23, 2014  
To: Health & Safety Manuals  
From: Tim Bucci, APi Group, Inc. Director of Risk Management  
Re: Annual Review of APi Group's Health & Safety Program

The original APi Group, Inc. Health & Safety Program was implemented in 2005. In compliance with MNOSHA and other state and federal requirements, we have reviewed this program and have made necessary revisions for the 2014 calendar year.

In regards to the recently established Globally Harmonized System (GHS), we have updated our Hazard Communication Policy, however there are other instances where Material Safety Data Sheets (MSDS) are mentioned throughout the manual, please find MSDS interchangeable with the new Safety Data Sheets (SDS) standards.

This manual addresses the provisions of the Minnesota AWAIR Act through a policy called Minnesota AWAIR Program. Our corporate goals and a review of our previous year's performance are referred to in our APi Group, Inc. Risk Management Year-End Report.

Sincerely,

Tim Bucci

A handwritten signature in black ink that reads "Tim Bucci". The signature is written in a cursive style with a long, sweeping underline.

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## Corporate Safety Policy Statement

APi Group, Inc., and its Affiliates, hereinafter referred to as “The Company” is an organization striving to complete its work in a productive, safe and high quality manner. Concern for the safety of our employees is our greatest responsibility along with safeguarding of company and customer property. Safety is an integral part of how we do business and we have adopted a comprehensive plan to carry out that philosophy.

The policy of the company is to provide a safe working environment, free of hazards and to provide adequate safety devices and all required training to all employees. It is our goal to create safety awareness among our employees so that each individual understands that he or she has the ultimate responsibility to work safely. Unsafe work practices by an individual can often lead to accidents, even in a safe working environment. It is our goal to eliminate both unsafe practices and conditions that cause losses.

Further, **it shall be the policy of our company to:**

- Comply with federal, state, and/or local regulations governing the workplace.
- Take expedient action to correct or isolate unsafe conditions or work practices.
- Promote safety awareness.
- Hold each employee accountable for his or her individual responsibility for safety and,
- Encourage our employees to inform their supervisor immediately when unsafe conditions are present without fear of reprisal.

Take every reasonable precaution to ensure that employees can accomplish the safe completion of assigned tasks. We operate with the philosophy that quality; safety and productivity work alongside and complement each other - not get in the way of one another.

Compliance with the company Health and Safety Program is necessary at all times.

### SAFETY



QUALITY

PRODUCTIVITY



---

Russ Becker  
President  
APi Group, Inc.



---

Shawn Helmer  
Corporate Safety Director  
APi Group, Inc.



## Foreword

This Health and Safety Manual has been developed to establish minimum requirements for all of the APi Group, Inc member companies. It shall be used as the policy that governs our work and the diverse involvement we maintain within the international fire protection marketplace, U.S. industrial insulation sector, industrial and commercial contracting, steel fabrication industry, and industrial boiler and piping repair and maintenance operations. Great effort has been taken in the preparation of this document to assure technical accuracy and thoroughness of content to meet and or exceed compliance requirements of federal, state, provincial, and local regulatory agencies including the Occupational Safety and Health Administration (OSHA), Ministry of Labor (M.O.L.), Mine Safety and Health Administration (MSHA), Environmental Protection Agency (EPA), and the Department of Transportation (DOT). If however, at any time, a concern or question develops regarding the accuracy or intent of the contents of this manual, we ask that you contact the APi Group Corporate Safety Manager for assistance (651) 558-3300.

All supervisory staff shall have access or otherwise receive a personal copy of this Manual. Additional copies can or will be made available in the form of placement in job boxes, service vehicles, bid documents per request, or other methods deemed necessary or appropriate by Management.

This Health & Safety Manual is supplemented by an employee safety handbook that shall be issued at the time of hire and reviewed periodically thereafter. This handbook is a condensed version of the manual and serves as a ready reference for field and office applications. Those employees who have questions or need clarification regarding the contents of this handbook shall consult with the written Health & Safety Manual or applicable Safety Professional.

The provisions set forth in this Health and Safety Manual do not intend to violate any collective bargaining agreement, labor law, or other regulation in effect that governs a worker, jurisdiction, or other geographical location. Should a conflict arise, the local law or regulation shall prevail with the only exception being a recognized health and safety standard. Where a safety and health standard is at issue, the protection option affording an employee the greater level of safety and health shall be observed unless approved in writing by the APi Group Inc. Corporate Safety Director or their designee.

# Responsibilities and Authorities

## Section 2.1

### Purpose

The contents of this comprehensive Health and Safety Program identify the policies set forth by the company for our employees, the employees of others working under our control, and visitors who may conduct business at our projects or operating centers. The policies in this manual are provided as a guide to assist The Company in meeting minimum health and safety standards for the safe execution of all work activities. This section of the manual identifies the various disciplines within the organization that have defined responsibilities and authorities associated with the effective implementation of the Health and Safety Program. These responsibilities have been established for the protection of all employees and the conservation of assets.

### Responsibilities

#### *President*

Has overall responsibility to provide the requisite leadership, resources, and support of the development, implementation and enforcement, of The Company's Safety Program's Policies and Procedures.

#### *Corporate Safety Manager*

Shall have the responsibility and authority to develop and implement health and safety policies and procedures, monitor and report on their effectiveness and adequacy, manage all applicable regulatory activities, survey and or audit existing or prospective operations and facilities for health and safety concerns and make recommendations for improvement or compliance in support of the program. This individual shall have frequent communication with the Company's Safety Managers to provide leadership, direction, and overall effectiveness with the Health & Safety Program.

#### *Corporate Risk Manager*

Leads the team between the insurance carrier, Claim's Department, and each operating center for all claims involving general liability, automobile, property, and workers'

compensation insurance coverage's. This individual is responsible to work with each company to coordinate the investigation process and ultimate resolution of each claim. They also possess the responsibility to coordinate a means to provide accurate data on the exposure of each claim and classification to each company in a punctual manner. This individual shall also be responsible to ensure the claim's team works closely with each company and their Safety Department to communicate information and to provide strategy to minimize or mitigate damages.

#### *Manager*

By definition, can be a Company President, Vice President, Business or Operating Center Manager, or Construction and or Project Manager. This person has the responsibility, accountability, and authority for the implementation and enforcement of these Health & Safety Policies and Procedures. Specific responsibilities include:

1. Knowledge and understanding of the specific Health and Safety Policies and Procedures unique to their organization and scope of work.
2. Ensuring that all employees in their organizations are knowledgeable of their duties and responsibilities for accident and injury prevention and held accountable for their performance.
3. Providing the personnel, supplies, equipment, and training necessary to successfully implement the accident and injury prevention policies and procedures.
4. Shall be able to recognize and identify hazards in the workplace and initiate timely corrective action to prevent injury and or loss to our employees and property.
5. Support and participate in the investigation process for any incident that results in injury to employees or property damage and take appropriate action to eliminate reoccurrence of similar incidents.

# Responsibilities and Authorities

## Section 2.1

6. Soliciting technical expertise from the Safety Manager / Professional to identify hazards for proposed and / or existing projects and the methods to mitigate or otherwise eliminate those hazards.

### *Safety Manager*

This individual possesses a combination of education, experience, and / or certification in the Occupational Safety and Health Profession and is expected to:

1. Coordinate and manage all safety and health activities for a given operating center, project location, or region in which we work.
2. Communicate safety activities with their respective Senior Management and Corporate Safety Director to assure effective implementation of the safety program.
3. Assist in the scheduling, planning, and execution of all applicable safety and health training.
4. Conduct periodic safety audits and or evaluations of project locations or operating centers and make recommendations for corrective action on issues that are deficient or not in compliance with this Health and Safety Program or recognized industry standards. The Safety Manager is expected to and shall enforce all applicable aspects of these policies and procedures, and where necessary, issue disciplinary action for noncompliance or employee misconduct.
5. Investigate all incidents, within their organization, involving employee injury, property damage, automobile accidents or damage, near misses, or any other incident that requires investigation to effectively safeguard employees and / or the Company.
6. Possess the necessary knowledge of all applicable Federal, State, local, or site specific regulations and or standards that govern the work which we perform.

7. Communicate injury and loss information to the Corporate Claims Department and assist in the management of all claims as applicable.

8. Posses the necessary knowledge and understanding of the Company's Return to work Program and provide all required assistance to return all applicable employees back to gainful, unrestricted employment in a timely and effective manner.

9. Maintain all applicable accident and injury prevention records and compile the required reports for occupational injuries and illnesses.

10. Perform pre-job safety assessments to identify hazards and establish safe work practices and plans prior to the commencement of work activities.

11. Establish first aid, medical treatment, and emergency plans and procedures for the workplace.

12. Develop and implement specific policies or procedures that are appropriate for hazards unique to the scope of work.

### *Safety Supervisor / Coordinator*

The Safety Manager, Corporate Safety Manager, Company Manger, or a combination of one or all shall determine the need and hire or appoint a Safety Supervisor / Coordinator at job sites or operating centers as necessary. In some cases this position may be the assignment of safety responsibilities to an individual who may already operate in another capacity for the Company. The applicable Safety Manager shall hold ultimate responsibility for reviewing the qualifications of such individual as well as assigning their respective responsibilities and authorities. At a minimum, this individual shall possess:

1. Applicable Safety Certification/s and or training recognized by industry for the type of work to be performed.

2. Commensurate field experience.

# Responsibilities and Authorities

## Section 2.1

3. Ability to implement and enforce the Company's Safety and Health Programs, Policies, and Procedures.
4. Knowledge and understanding of applicable Federal, State, Local or site-specific regulations and or standards that govern the work which we will perform.
5. Ability to perform and document incident investigations, near misses, injury /illnesses and/or property damage claims, utilizing Company procedures and applicable forms.
6. Understanding, knowledge, and expectations under the Company's Return-to-Work Program.

This individual shall be empowered by the Company to implement the Company's Health and Safety Program. The Safety Manager or Corporate Safety Manager shall determine additional duties of this individual based on their training, education, and experience as applicable.

### *Superintendent / Foreman*

Have the responsibility to implement the accident and injury prevention policies and procedures applicable to the activities and facilities for which they work and for those they supervise. These responsibilities include:

1. Ensure that all employees under their supervision are knowledgeable in the safe work practices and procedures associated with their work, including the use of personal protective equipment.
2. Enforcement of the accident and injury prevention policies and procedures.
3. Pre-planning all work activities to address associated safety requirements, rules, and standards.
4. Utilizing engineering controls to eliminate workplace hazards or assigning applicable personal protective equipment to adequately protect employees.

5. Frequently inspect the work area for safety hazards and or unsafe acts and take prompt action to eliminate or reduce those hazards and risk presented to our employees.
6. Actively participate in the investigation of all accidents, incidents, or near misses. Ensure the root cause of such incidents is identified and controls or corrective actions are established to prevent reoccurrence.
7. Inspect all tools and equipment for defects and remove them from the job site as necessary.
8. Attend and / or conduct daily / weekly tool box meetings.
9. Participate in project progress meetings and communicate health and safety issues that impact our work or those working adjacent to us.
10. Always take prompt corrective actions for those hazards with which they have responsibility and control. Communicate those hazards to the applicable manager that are not within your scope or authority.
11. Promptly report all job related injuries and illnesses to the applicable Safety Manager, their designee, and the APi Risk Management Department to ensure that appropriate medical attention is provided to the injured employee and all required documentation is fulfilled.
12. **Most importantly – You are the Lead Supervisor on the project representing the Company and it is expected that you shall set the appropriate example for those you supervise by adhering to the Health and Safety Requirements outlined in this manual.**

### *Employees*

Each employee is responsible and accountable for performing their work activities in compliance with the provisions of this Health and Safety Program. Specific responsibilities include:

# Responsibilities and Authorities

## Section 2.1

1. Compliance with all Company and site specific safety policies, rules, and procedures.
2. Refraining from work practices, use of tools, equipment or materials which pose a hazard to the safety of employees.
3. Obtaining specific safety instruction prior to performing new or unfamiliar tasks.
4. Promptly correcting hazards or hazardous conditions that are clearly within your ability and authority to correct. You are required to immediately notify your supervisor of hazards or hazardous conditions that are deemed outside of your ability or authority to correct.
5. Promptly report all injuries / illnesses, near misses, or damage to property to your supervisor. If injured, it is the expectation of the Company that you will fully cooperate with the medical treatment plan.
6. If injured, the Company expects that you will comply fully with the medical provider and follow the treatment plan including follow up care and working within assigned restrictions if applicable.
7. Properly use personal protective equipment, tools, and other equipment in the manner specified by the Company or manufacturer.
8. Inspect tools, equipment, materials, and the overall work area for hazards prior to performing work tasks and periodically throughout the project.
9. Each employee will be expected to keep their immediate work area in a clean and orderly fashion with attention to good housekeeping practices.
10. Complete understanding that you will be held accountable for all aspects of the Health and Safety Program and can be disciplined, including termination, for noncompliance or complete indifference to your personal safety or the collective safety of others.

### Corporate Health & Safety Committee

APi Group, Inc. shall establish a multi-disciplined Executive Health & Safety Committee consisting of the President, Corporate Safety Manager, APi Company Officers, Company Safety Managers, and other Operating Center Managers. This committee shall meet a minimum of at least once per calendar year and shall:

1. Review existing polices and procedures and identify and establish necessary revisions or the necessity for the development of new policies.
2. Advise the committee on safety policy issues unique to the Company and or scope of work for all lines of business.
3. Monitor legislation and regulatory changes as they relate to occupational safety and health.
4. Review annual safety performance for all companies and identify strengths as well as opportunity for improvement. This will include a review of the Company's Experience Modification Rate as well as OSHA statistical information and inspection and citation activity.
5. Develop safety and health goals and objectives for the next year and communicate to all operating centers.

### Training

Each discipline defined in this program shall receive and comprehend initial training on this program upon date of hire and periodically thereafter.

# Safety Training Requirements (New Employee Orientation)

## Section 3.1

### Purpose

The Company is a strong advocate in educating our workforce to effectively identify and control workplace hazards. This program has been developed to define the training requirements for new employees, existing employees, and to provide all employees with applicable task and site specific safety training.

The Company expects employees to actively participate in this program to assure all projects and tasks are executed safely and productively.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist in content development of all training materials. This individual shall review all projects to assure that all required training has been fulfilled prior to the start of work activities. Safety Manager's shall periodically review and modify training materials to assure that Company and Owner-specific training requirements have been satisfied. This individual shall visit projects or office locations and provide training as applicable or requested and evaluate training documentation to assure that the program is successfully being implemented. They shall communicate any deficiencies to the applicable Manager.

#### *Superintendent / Foreman*

Shall have the responsibility to assure that all employees under their supervision have been provided with all applicable safety training, including tasks not previously performed or otherwise unfamiliar to employees, prior to the commencement of work activities. The Company expects that the Superintendent /

Foreman is cognizant of all applicable safety rules for a project/s and can complete this training for the crew in which they supervise.

#### *Employee*

Shall actively participate in all Company or Owner provided safety training. It is the employee's responsibility to inform the Company if they have not received required training or are unfamiliar with the safe work practices and or rules associated with tasks or activities they are required to perform.

### New Employee Safety Orientation

A safety orientation shall be conducted prior to job start-up for all current employees and for each newly hired employee. This training shall include, but is not limited to:

1. A review of the Company's Health & Safety Rules. This information is available in a pocket-sized handbook. The Superintendent, Safety Manager, or their designee shall explain the contents of this handbook, assure employee comprehension and understanding of the materials, and have the employee sign the acknowledgement form located at the back of the handbook.
2. A review of the applicable Owner or site specific rules as they pertain to the scope of work. This review may be provided by the Owner or the Company. The Superintendent is responsible to assure that all applicable employees attend such training as identified by Owner or contractual requirements.
3. All applicable employees shall receive training and instruction on Job Hazard Analysis (JHA's), if such document is prepared.
4. Employees shall receive training on task specific safety requirements as identified by regulatory standards and or Company-specific policies and rules.

# Safety Training Requirements (New Employee Orientation)

## Section 3.1

5. Employees shall receive Hazard Communication (HAZCOM) training information including, the location of the Company HAZCOM Index of hazardous materials used at the site, instruction on how to access Material Safety Data Sheets (M.S.D.S.'s), and a review of all applicable hazardous materials and associated safe handling practices for materials that may be used or encountered by the employee during the course and scope of their employment.
6. All employees shall be instructed on Company and Owner-specific Personal Protective Equipment (PPE) requirements. The Superintendent and or Safety Manager shall determine the type and style of PPE to be utilized based on the known or anticipated hazards our employees may encounter.

### Refresher Training

Employees shall receive refresher training on applicable subjects as identified by regulatory, Owner-specific, or Company-specific requirements. The Superintendent and / or Safety Manager has the responsibility to provide discretionary refresher training on any subject when they observe or learn of any employee who is performing unsafe work practices that may compromise their personal safety or the safety of others.

### Examinations / Documentation

The Superintendent and or Safety Manager shall endeavor to verify competency of all training materials by providing employees with performance examinations that are prepared by clients, regulatory agents, vendors, or the Company. If utilized, the Superintendent and / or Safety Manager shall assure that all employees have satisfactorily completed such examination. If employees remain unclear of safety objectives and or safe work practices and / or requirements, they shall receive additional instruction to further assure their understanding of the material covered before being released to the work environment. All

employee training and competency verification shall be documented. Documentation shall include the name of the employee, date of instruction, materials covered, examination results, and name of the job-site location. This documentation can be fulfilled by completing the "Employee Training Record," listed as *Appendix A* of this document, and shall remain at the project or fixed facility with an additional copy forwarded to the applicable safety manager or supervisor for placement in project or employee files. A General Orientation Competency Exam, listed as *Appendix B* of this section, shall be used as a tool to verify comprehension of training conducted.

### Supervisor Training

The Company shall develop and implement a safety training program that is specifically tailored to existing and newly hired Company Supervisors. For definition purposes, Company Supervisors may be Superintendents, Engineers, Project Managers, or Company Presidents. This training shall consist of a comprehensive presentation of the overall Company Health and Safety Program, Policies, Procedures, and the Company's expectations of its supervisors. This training shall include, but is not limited to:

1. Outline of the Health and Safety Program and job-site safety handbook.
2. Company Safety Objectives and Goals.
3. Current and historic safety performance.
4. Accountability, authority, and responsibilities of Supervisors.
5. A review of applicable insurance information.
6. Accident and Injury Reporting.
7. Hazard recognition, pre-job safety analysis, Job Safety Analysis, and site safety inspections and or audits.
8. OSHA Inspections.

# Safety Training Requirements (New Employee Orientation)

## Section 3.1

This training shall be documented and maintained at the Corporate Safety Office. Refresher Supervisor Training shall be conducted annually thereafter upon date of hire.

### Continuing Training

Tool Box Safety Talks shall be conducted by the foreman or other supervisory personnel on a weekly basis at a minimum. The Superintendent shall be responsible for insuring that these meetings are conducted as required. The Superintendent shall also be responsible to select or procure Tool Box Safety Talks adequate for the duration of the project. All attendees are encouraged to actively participate in these meetings, at the same time, communicate any relevant site or job-specific safety issues. The Superintendent is responsible to identify deficiencies and implement corrective action to assure all deficient items have been corrected. Tool Box Safety Talks shall be:

1. 10 to 15 minutes in duration.
2. Attended by all craft personnel.
3. Relevant to the scope of work being performed.
4. A venue to discuss safety issues unique to the project, including safety issues presented by other employers and or Owner's employees that may impact our employees.
5. Supplemented by visual aids such as defective tools or equipment, personal protective equipment, or demonstrations of procedures.
6. A time to review site incidents, accidents, or near misses.

This meeting shall be documented to include all meeting attendees, the subject matter covered, the date, and any deficiencies requiring corrective action. This meeting record shall be maintained on the project site

throughout the duration of the project and forwarded to the home office upon project close-out. A method to document tool box meetings is provided in this section as *Appendix C*, entitled Tool Box / Safety Meeting Sign-In Log. These records are subject to audit by the Company and during OSHA Inspections.

### Appendices

Appendix A – Safety Training Record

Appendix B – Competency Examination

Appendix C – Tool Box / Safety Meeting Sign-In Log



## Appendix B Competency Examination

- |   |  |
|---|--|
| <p>1) A full body harness with lanyard shall be worn and secured to a suitable anchorage point when exposed to fall hazards equal to or greater than 6 feet.<br/>True _____ False _____</p> <p>2) Scaffolding can be erected by any employee.<br/>True _____ False _____</p> <p>3) Scaffolding shall be equipped with a top rail, _____, and a toeboard.</p> <p>4) Extension ladders shall be secured at the top, extend 3' above the landing surface, and be placed at a 4 to 1 ratio with respect to height and footing placement.<br/>True _____ False _____</p> <p>5) Ladders or other elevating platforms can safely be used on scaffolding to achieve a greater height.<br/>True _____ False _____</p> <p>6) Aerial lifts require operator training and _____ before use.<br/>a) Inspection b) Survey of ground conditions<br/>c) familiarization with controls d) A, B, &amp; C</p> <p>7) Maintain a minimum clear distance of 10' with all overhead power lines.<br/>True _____ False _____</p> <p>8) _____ shall be used with all temporary electric tools.<br/>a) GFI b) GFCI's c) MRI's</p> <p>9) Extension cords, hoses, welding leads shall be routed overhead, whenever feasible, and suspended via non-conductive means.<br/>True _____ False _____</p> <p>10) A _____ permit shall be completed and posted at work locations that produce flame, spark, or other ignition sources.<br/>a) Fire b) Work c) Hot Work</p> <p>11) An _____ fire extinguisher offers the best protection for extinguishing most fires.<br/>a) AB b) BC c) ABC d) D</p> | <p>12) I am required to wear _____ as the basic personal protective equipment for this job or position.<br/><i>[select all that apply]:</i> a) Safety Glasses<br/>b) Hard Hat c) Work Boots<br/>d) Steel Toed Work Boots e) Gloves</p> <p>13) Beards and / or significant facial hair can significantly affect the protection factor of a respirator.<br/>True _____ False _____</p> <p>14) Prior to an excavation or trench, a state or local agency must be called to identify underground utilities.<br/>True _____ False _____</p> <p>15) Material safety data sheets (MSDS's) for all hazardous materials used in the workplace are available to you.<br/>True _____ False _____</p> <p>16) MSDS's for this project or facility are located _____.</p> <p>17) What is the emergency number for a fire, spill, chemical or medical emergency, that will summon emergency response? _____.</p> <p>18) I am responsible for keeping my work area in a clean and orderly fashion.<br/>True _____ False _____</p> <p>19) I am responsible to actively participate in the Company's Safety Program, follow safe work procedures, and be accountable for my workplace actions.<br/>True _____ False _____</p> <p>20) I am responsible for notifying my employer of any workplace injury or illness immediately upon occurrence.<br/>True _____ False _____</p> |
|---|--|

\_\_\_\_\_  
Name

\_\_\_\_\_  
S.S. #

\_\_\_\_\_  
Job Number

\_\_\_\_\_  
Date

## Appendix C Tool Box / Safety Meeting Sign-In Log

TOPIC(S): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

*(Attach or Photocopy meeting contents to the back of this log.)*

Video Title(s) (1): \_\_\_\_\_ (2): \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Location of Training: \_\_\_\_\_ Date: \_\_\_\_\_

	Print Name	Signature	Employee Number/SSN
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			

Other items/issues discussed at meeting: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# General Work Rules

## Section 3.2

### Purpose

The Company is of the firm belief that preventing injuries, illnesses, and losses is paramount in the protection of our employees and other Company assets. However, if a workplace injury or illness does occur, the Company has established an aggressive Return-to-Work Program that is dedicated to returning injured or ill employees back to work through transitional work duties and ultimately unrestricted, gainful employment.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall audit projects and office locations to assure these rules have been implemented and enforced.

#### *Employee*

Shall have read, understand, and be held accountable to these rules and their workplace actions.

### General Work Rules

1. All employees shall take their work direction or instruction from their supervisor. Employees shall not take instruction from a client or vendor unless they have consulted and gained the express authority from their supervisor to take such direction.
2. Employees shall not knowingly or willingly circumvent recognized safety standards, Company policies, or client-specific policies and / or procedures which have the potential to result in personal injury or endangerment to the safety or well-being of any personnel.

3. Employees shall not falsify records, reports, facts, information, or engage in other purposeful acts to misrepresent an injury, accident, property damage, etc.
4. Employees shall not possess firearms, ammunition, and weapons of any kind, illegal drugs and or alcohol on client or Company property.
5. Employees are expected to report to work "Fit-for-Duty". Employees physically unfit for duty should communicate any concerns they may have with respect to completing anticipated tasks. Applicable employees who appear to be under the influence of drugs and or alcohol may be subject to reasonable suspicion testing under the provisions of the Company's Substance Abuse Program.
6. Employees shall not remove Company, client, or other employee's property without express permission.
7. Employees shall not disrupt work progress activities including: fighting, horseplay, physical altercations, or intentional slowdowns. Employees shall not engage in violence, threat of violence, or harassment of any kind on Company or client property.
8. Employees shall not engage in any act of sabotage.
9. Employees shall not participate in gambling or the solicitation of funds for gambling purposes.
10. Employees are expected to be in there work area at the designated start time and prepared to embark on the day's activities.
11. Each employee will be expected to keep a tidy workspace that is free from clutter and excessive debris or materials. The Company shall designate time each day for all employees to conduct housekeeping activities.

# General Work Rules

## Section 3.2

12. Employees shall use sanitation and hygiene facilities that have been designated for Company use.

13. Smoking shall be in designated areas only.

14. Work / coffee breaks shall take place as identified by local union agreements or job-site requirements.

15. Employees shall remain in their respective work areas until the specified quitting time.

16. Employees are not allowed to take photographs or videotape of client's property unless they have gained the express consent of the client and have cleared it through their supervisor.

17. Employees shall follow all tool and material procurement procedures as specified by the Superintendent or Company requirements.

18. Employees shall not destroy, damage, or "misplace" tools, materials, or equipment through careless or willful acts.

19. The Company will not tolerate employee insubordination.

20. Employees shall remain in their workplace during the course and scope of employment and will not be permitted to wander the site or enter unauthorized employee areas.

21. Employees shall not manipulate or activate any client's mechanical or electrical devices such as valves, switches or process controls. Employees shall immediately consult with the job Manager / Supervisor if a client or their representative makes such a request of a Company employee.

22. The Company and its clients reserve the right to inspect employee vehicles, lunch boxes, packages, or other articles in possession of site personnel entering or leaving a job-site.

23. Employees shall wear all Company and client required Personal Protective Equipment (PPE) at all times.

### Disciplinary Action

Any employee violating these General Work Rules shall be subject to disciplinary action up to and including termination. The Company shall have the sole discretion to implement progressive discipline or immediate suspension or termination dependent on the gravity of the violation.

### Training

Employees shall receive instruction or be provided a copy of these General Work Rules upon date of hire and periodically thereafter.

# Policy Enforcement and Disciplinary Action

## Section 3.3

### Purpose

The Company expects all employees to follow, observe, and adhere to the policies and procedures of the Company, General Contractors, and or Owners as a condition of employment. The following disciplinary action plan has been developed and implemented for those personnel who knowingly, willingly, or repeatedly violate safety policies and or rules. The Company will not tolerate this behavior and will swiftly deal with those personnel who commit unsafe acts in the best interest of their personnel safety as well as the collective safety of others.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall audit projects and office locations and notify appropriate supervisors of employee nonconformance.

#### *Employee*

Shall have read, understood, and be accountable to this policy and workplace behavior.

### Enforcement

The Company has developed a progressive Disciplinary Action Program to effectively deal with employees who violate safety policies and procedures, employee safety and / or work rules, or is engaged in unsafe work practices. As a result of a safety violation, employees will be subject to one of the following disciplinary actions with respect to the gravity of the violation:

*1<sup>st</sup> Offense* - Verbal or Written Warning.

*2<sup>nd</sup> Offense* – Written warning and 3-day work suspension without pay

*3<sup>d</sup> Offense* – Termination.

In each instance, the employee will be provided with a written copy of the Violation Notice, listed as *Appendix A* of this policy. Copies of this violation shall be made available to the employee's Project Manager or Superintendent, the Union from which the employee is represented (when applicable), and the Company Safety Department.

The Company is not prohibited from foregoing progressive discipline and implementing corrective action in the form of immediate employee termination and removal from the jobsite or office location if the employee's conduct constitutes a serious violation that could cause serious loss or danger to the employee, co-workers, employees of others, property, or equipment.

The job-site supervisor is the key to this program. The Company's expectation is that they will enforce applicable safety policies and procedures at the site or office location, and when necessary, discipline employees for nonconformance. In essence, they are accountable for the actions of those they supervise. Failure to enforce this policy can result in disciplinary action up to and including termination.

### Notice of Safety Violation

All written Violation Notices shall be issued on the form provided in this policy and a meeting held with the employee(s) to discuss the nature of the infraction(s). The employee shall be informed of the policy, procedure, or rule that was violated and the corrective action that is being implemented. It shall also be explained to the employee, should they remain employed, that subsequent violations can result in termination. Complete the Violation Notice in its entirety and forwarded per the distribution instructions on the form.

### Appendices

*Appendix A – Violation Notice*

**Appendix A  
Violation Notice**

Employee Name: \_\_\_\_\_ Craft / Occupation: \_\_\_\_\_

Project Number: \_\_\_\_\_ Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_ Date: \_\_\_\_\_

This notice has been issued to advise the above-named employee of a violation of established work rules or safety standards. The activity described below has the potential for serious injury to the employee, co-workers, employees of others, and or loss of property or equipment. Further violation(s) of established work rules or safety standards shall be cause for disciplinary action, which can include immediate termination and or removal from the job-site.

Nature of Violation or Infraction: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Action Taken:  Verbal Warning  
(Check One)  Written Warning (Suspension of \_\_\_\_ Days)  
 Termination

Issued By: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Manager's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Employee's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Distribution: Original to employee  
Copy to Project Manger  
Copy to Union Local or employer  
Copy to Safety Department



# Substance Abuse Policy

## Section 3.4

Employees are considered an extremely valuable resource for our business. Their health and safety is a serious Company concern. Drug and / or alcohol use may pose a serious threat to the health and safety of our employees. It is, therefore, the policy of The Company and affiliates to prevent substance use or abuse and / or misuse of alcohol from having an adverse effect on our employees. The Company maintains that the work environment is safer and more productive without the presence of alcohol, or illegal drugs in the body or on The Company's property. Furthermore, employees have a right to work in an alcohol and drug-free environment and to work with employees free from the effects of alcohol and drugs. Employees who abuse alcohol or use drugs are a danger to themselves, their coworkers, company property, property of others and the public.

The Company is committed to maintaining a drug-free and alcohol-free workplace. All employees are advised that remaining drug-free and medically qualified to work are conditions of continued employment with The Company and affiliates.

Specifically, it is the policy of The Company that the unauthorized use, sale, purchase, transfer, possession or presence in one's system of any controlled substance (except medically prescribed drugs specifically

prescribed for the individual) and / or alcohol by any employee while on Company premises, engaged in Company business, while operating Company equipment, or while under the authority of The Company or affiliates is strictly prohibited. The use of marijuana, even if medically recommended, is a violation of Company Policy.

The execution and enforcement of this policy will follow set procedures to screen body fluids, conduct breath testing, and / or search all employee applicants and current employees for alcohol and drug use, and those employees suspected of violating this policy who are involved in a serious incident or who are selected for testing according to these procedures. These procedures are designed not only to detect violations of this policy, but to ensure fairness to each employee. Every effort will be made to maintain the dignity of employees or employee applicants involved. Disciplinary action will, however, be taken as necessary.

Neither this policy nor any of its terms are intended to create a contract of employment or to contain the terms of any contract of employment, or violate any collective bargaining agreement. The Company retains the sole right to change, amend or modify any term or provision of this policy without notice. This revised policy is effective January 1, 2014.

APi GROUP, INC

A handwritten signature in black ink, appearing to read "Russ Becker", is written over a horizontal line.

Russ Becker  
President

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### **Purpose**

This program was developed for the purpose of improving employee Health & Safety, while assuring Quality and Productivity. This policy was designed to meet the requirements of the Federal Drug-Free Workplace Act.

### **Applicability**

This program is applicable to all Company and affiliate employees and may be applicable to temporary employees or employees of others on The Company's and affiliates controlled sites, facilities and equipment. This program does not constitute a DOT Drug Program. The Company has a separate DOT Program.

### *Exception*

This program may be superseded by a customer or site specific location plan where more stringent procedures and requirements may exist, or applicable collective bargaining agreements or where local or state laws may require specific modifications. The intent of this policy is to comply within jurisdiction regulating these issues.

### **Definitions**

#### *Adulterated Specimen*

Presence of [compound(s)] detected in specimen. This applies when a specific adulterant(s) is identified by the laboratory through a procedure that can be forensically validated.

#### *Alcohol*

The intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohol including methyl and isopropyl alcohol.

#### *Alcohol Use*

The consumption of any beverage, mixture, or preparation, including any medication containing alcohol.

#### *Breath Alcohol Technician (BAT)*

The BAT is an individual who instructs and assists individuals in the alcohol process and operates an evidential breath testing device (EBT).

#### *Chain of Custody*

Procedures to account for the integrity of each body fluid specimen by tracking its handling and storage from point of specimen collection to final disposition of specimen.

#### *Collection Site*

A place where individuals present themselves for the purpose of providing breath, body fluid, or other samples to be analyzed for specified controlled substances.

#### *Confirmation Test*

For alcohol testing means a second breath test, following an initial screening test with a result of 0.02 or greater that provides quantitative data of alcohol concentration. For controlled substances, testing means a second analytical procedure to identify the presence of a specific drug or metabolite which is independent of the screen test and which uses a different technique and chemical principle from that of the screen test in order to ensure reliability and accuracy.

#### *Controlled Substance*

Has the meaning assigned by 21 U.S.C. 802 and includes all substances listed on Schedules I through V, which contains any illegal drug and prescription medications.

#### *Dilute Specimen*

A dilute specimen (SG < 1.003 and creatinine < 0.2 g/L) is cause to require the donor to submit to another specimen collection. The employer may require the next specimen be submitted by the donor to be collected under direct observation. Alternate testing method is used only when

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and individual has a medical condition defined in 49 CFR Part 40.

### *Drugs*

Defined as illegal under federal, state or local laws. They include but are not limited to Marijuana, Opiates, Cocaine, PCP, and Amphetamines.

### *Drug Abuse*

Abuse includes: Use, possession, distribution, or sale of alcohol, drugs or drug paraphernalia, being under the influence of drugs or alcohol, misuse or impairment by authorized drug use, which in the opinion of the Medical Review Officer (MRO) may affect the individuals work performance or his or her own or other's safety. Use of drugs or alcohol during non-working hours which could affect the individual's work performance or his or her own or other's safety at work, or resulting in a measurable (threshold level or above) presence of any controlled substance (drug) in the body.

### *Employee / Individual*

As used in this program refers to all Company employees, including permanent and temporary individuals and those represented by collective bargaining agreements.

### *Evidential Breath Testing Device (EBT)*

A device approved by the National Highway Traffic Safety Administration (NHTSA) for the evidential testing of breath and placed on NHTSA's "Conforming Product's List of Evidential Breath Measurement Devices" (CPL).

### *Health and Human services (HHS) Guidelines*

U.S. Department of Health and Human Services, Alcohol, Drug Abuse and Mental Health Administration Guidelines. Federal Register, governing regulation for drug testing procedures, limits, documentation, reports, and records.

### *Medical Review Officer*

A licensed physician who has had extensive training in reviewing and interpreting drug tests. His / Her primary responsibility is to review and to interpret the positive test result obtained through the drug testing program. On positive test results, the MRO may conduct an interview with the individual to review medical history and to give the individual an opportunity to discuss / explain the test result.

### *Random Selection Process*

A mechanism for selection of employees that (1) results in an equal probability that any employee from a group of employees subject to the selection mechanism will be selected and (2) does not give an employer discretion in the selection of any employee selected under the mechanism.

### *Reasonable Suspicion*

Based on a behavior which is unusual to the circumstances or the individual's normal behavior, which indicates or could indicate impairment or drug abuse. **Refer to Supervisor's Checklist for Reasonable Suspicion Observation Form** for instructions. All appropriate people shall have training concerning the manifestations of alcohol and drug use and abuse. Records of such training shall be maintained by the Company.

### *Refusal to Submit (to an alcohol or controlled substance test)*

Testing shall be considered a condition of continued employment with the Company and affiliates. Refusal to be tested will be viewed as non-compliance with Company Policy and cause for disciplinary action up to and including termination.

### *Safety-Sensitive Function*

As defined below including but not limited to:

1. Responsibilities that include calling emergency response services in the

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- event of an accident.
2. The likelihood for working at elevation.
  3. Walking / working in close proximity to power tools and heavy equipment.
  4. Exposure to potentially active process systems of a customer, and may have to respond to a medical emergency involving himself or herself or a co-worker.
  5. Any function where a momentary lapse of concentration may result in serious injury or death.

### *Split Sample*

Is a sample, which is collected in one container and in the presence of the donor split into two bottles (Bottle A & Bottle B). Bottle A is utilized for initial testing and Bottle B is used for any requested retesting.

### *Substance Abuse Professional (SAP)*

A licensed physician (Medical Doctor or Doctor of Osteopathy), or a licensed or certified psychologist, social worker, employee assistance professional, or addiction counselor (certified by the National Association of Alcohol and Drug Abuse Counselors Certification Commission) with knowledge of a clinical experience in the diagnosis and treatment of alcohol and controlled substances-related disorders. The Company reserves the right to approve or disqualify a SAP based upon performance history or independent recommendations of a qualified physician.

### **Responsibilities**

#### *Employer*

The Program Administrator, or designee, and the Company Safety Department shall be responsible for the administration and implementation of this program. Additional responsibilities may be assigned as addressed herein. Responsibilities may be delegated unless specifically prohibited by this program. The employer:

1. May not allow any Installer / Service Person / Warehouse or Office Worker to perform a safety-sensitive function after they have tested positive for use of a controlled substance and / or with an alcohol concentration of 0.04 or higher.
2. Must observe and prepare written documentation of any Installer / Service Person / Warehouse or Office Worker suspected of alcohol or controlled substance use, and notify the Alcohol and Drug Testing Program Administrator. (Supervisors Checklist).
3. Must follow Company specific procedures for implementation and enforcement of this policy.
4. Must answer specific questions regarding the policy.
5. May initiate corrective action with appropriate supervisor.

#### *Employee*

1. All employees must report to his / her supervisor / manager immediately the use of all legally prescribed medications issued by a licensed health care professional familiar with the employee's work-related responsibilities, **which could have an adverse affect on his / her, ability to perform their duties.** The employee may be required to provide written evidence from the health care professional of "fitness for duty" to perform his / her job functions.
2. All employees are to refrain from the use of controlled substances or being under the influence of a controlled substance while performing job related tasks.
3. All D.O.T. employees are to refrain from using alcohol within four hours of reporting to work. All employees should refrain from using alcohol while performing job related functions, unless it is a sanctioned function and alternative transportation is offered.

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4. All employees are to comply with requests to submit to an alcohol or controlled substance test required for Pre-Assignment, Post-Incident, Random (unless prohibited by a Collective Bargaining Agreement), Unscheduled Test, Reasonable Suspicion ("For Cause"), Return To Duty, or Follow-Up Testing requirements.
5. When involved in a Post-Incident Alcohol Test, all employees are prohibited from using alcohol within eight hours following the accident / incident or prior to undergoing a Post-Incident Alcohol Test, whichever comes first.

### *Medical Review Officer (MRO)*

The Company shall appoint a MRO. The responsibilities of the MRO shall be to:

1. Maintain appropriate systems, records, and administrative procedures to provide participating employers with accurate and timely information as to the drug and alcohol-free status of employees.
2. Verify all test results.
3. As a part of a confidential interview, notify the tested individual of a positive result and provide the individual with an opportunity to discuss the reasons why their test might be positive, other than Drug Abuse.
4. Determination of proper use of prescribed or non-prescription medications use for all positive results.
5. Review a participating employee's medical/pharmacy record if requested by the employee.
6. Notify the employer's contact person of all test results, both positive and negative, and of any safety related concerns if a negative test result and the employee is taking a prescribed or over

the counter medication which has an impairing effect.

### **Searches and Inspections**

The Company management and / or workplace supervision may conduct searches and inspections, as needed, to ensure compliance with this program.

### **Drug / Alcohol Testing Requirements**

Drug testing shall be performed in accordance with the HHS Guidelines and applicable state laws. Cut-off limits shall be in accordance with current SAMSHA standards. Drug tests shall be by urinalysis, oral fluid, or other appropriate sample. Tests shall be confirmed by a certified laboratory. As required, tests may include Pre-Employment, Pre-Assignment, Reasonable Suspicion, Post-Incident, Random, Unscheduled, Return to Duty, and Follow-Up Testing. Alcohol testing shall be included in Reasonable Suspicion testing and may be included in Post-Incident, Return to Duty, and Follow-Up Testing. All testing requirements shall have a Consent to Drug Testing form signed; this form is listed as *Appendix B* of this document.

### *Pre-Employment or Pre-Assignment Drug Testing*

1. New job applicants may be extended a conditional job offer contingent upon a negative drug test and meeting all other conditions of employment if reasonable suspicion exists.
2. No alcohol testing will be done on pre-employment, but may be done a pre-assignment.
3. Current employees may be required to take a pre-assignment drug and / or alcohol test to work in certain workplaces if it is required by the owner or customer.

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### *Post-Incident*

Involvement in or cause of an accident which causes or could have caused injury to the employee or another individual which requires off-site medical evaluation and/or treatment, or which causes or could have caused destruction or damage to property.

1. All Post-Incident testing will consist of a drug test, and may include an alcohol test.
2. Minor injuries not requiring off-site medical evaluation and / or treatment and foreign bodies floating in the eye may not require Post-Incident testing (embedded objects in the eye do require drug testing).

### *Reasonable Suspicion*

Based on observed behavior, which is unusual to the circumstances or the individuals normal behavior, which indicates or could indicate impairment or drug abuse. This observation can be documented on *Appendix B*, entitled Supervisor's Checklist for Reasonable Suspicion. All appropriate people shall receive training concerning the manifestations of alcohol and drug use and abuse. Records of such training shall be maintained by the Company.

1. An employee must submit to an alcohol and controlled substances test when there is Reasonable Suspicion to believe the employee has violated the alcohol or controlled substance prohibitions.
2. When personnel who are relieved from duty for Reasonable Suspicion or evidence of alcohol or drug use every effort should be made to prevent the individual from driving any vehicles (including their own) and they should be transported to the collection site by a supervisor if possible.
3. The employee will remain off-duty until results are confirmed by the laboratory and verified by the MRO.

4. Negative results will constitute reinstatement in the same job without loss of wages and / or benefits.
5. A positive result will cause initiation of the appropriate disciplinary action measures outlined in this policy.

### *Random Testing*

Based on a process, which does not allow the employer the ability to influence the outcome of selection. (see definitions)

1. Employee selection will be computer lists generated by the Drug Program Administrator.
2. If an employee is selected who is on vacation or a leave of absence, the employee selected will be required to take the test when he / she return to work with no advanced notice.
3. Selected employees will be notified and directed to report immediately to the substance abuse testing personnel or to a designated collection site.
4. Failure to report in a reasonable amount of time after notification (not to exceed two hours) may result in disciplinary action up to and including immediate termination for refusal to test.

### *Unscheduled Test*

Is unannounced with no prior notice or discernable pattern, and to include bargaining unit, non-bargaining unit, supervisors and management level employees at the worksite. The timing of such testing is to be unpredictable, fairly administered and at the discretion of management at the site.

### *Return to Duty*

Following any violation of the drug / alcohol policy, a Return to Duty test will be required. The result of the Return to Duty test must be negative before being returned to the workplace.

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### *Follow-up Testing*

Will be done as part of the reinstatement process or Self-Referral.

1. Follow-up testing will be a minimum of six months and can be extended up to sixty months.
2. Follow-up testing shall be done on company time at the expense of the company.
3. Follow-up dates for testing will be selected by the Program Administrator under the direction of a SAP.

### *Self-Referral*

If an employee comes forth prior to notification of a test for Pre-Assignment, Post-Incident, Random, Unannounced or Reasonable Suspicion, and identifies he / she has a drug or alcohol abuse problem, the employee will be referred to a Substance Abuse Professional (SAP) for assessment at the employees own expense. Those employees who have health care coverage will be able to see a SAP that will be covered by their health care plan. Continued employment in the current position, or reassignment to another position is conditional to meeting the SAP's guidelines and follow-up testing.

### **Positive Drug / Alcohol Test Result**

#### *Positive Drug Test Result*

Positive test result shall result in immediate removal from the workplace. (suspension without pay)

1. Alcohol
  - a. Any employee who test 0.04 and above will be considered a positive test result.
  - b. Those employees who have an alcohol concentration of not less than 0.02 and below 0.04 will be removed from the workplace without

pay until the next regularly scheduled work shift and will be subject to follow-up testing.

- c. There will be at least six unannounced follow-up alcohol tests conducted within the first twelve months; the follow-up testing will not exceed two years.

### 2. Drugs

- a. Any employee who has a confirmed result, which has been verified by the MRO, will be considered a positive result. Employees working for APi Group and affiliates are safety-sensitive by the very nature of their work and as a safety rule are required to pre-duty disclose that they are taking or using any impairing effect prescriptions, including medical marijuana, over the counter medications or other substances which may have an effect on performance of safety-sensitive duties. APi Group and affiliates do not accommodate the use of medical marijuana by safety sensitive employees. If the employee is taking or using an impairing effect medication or substance has not been disclosed pre-duty, and the employee tests positive, or it is otherwise determined that they are taking / using or it is determined by the MRO that they are a potential safety risk due to taking / using an impairing effect medication / substance, the employee will be subject to discipline, up to and including termination, for violation of this safety rule. If disclosure is made, APi Group and affiliates reserve the right to send the employee for a fitness for duty evaluation to evaluate the medication / substance and its effects on the performance of safety-sensitive duties. In advance of testing, employees are encouraged to have their own

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doctor make an individualized assessment of any safety-related risks of the medications / substances which they are taking/ using. The employee need not disclose to the APi Group and affiliates the medication or medical condition involved to fulfill the disclosure obligation of this safety policy. All information provided will be kept separate from personnel files and in a confidential manner. The MRO will make the final determination on the safety-related risks of any particular medication or substance.

### *Dilute Specimen*

1. Negative dilute specimens may require a second collection to be collected under direct observation. Alternate testing method is used only when an individual has a qualified medical condition defined in 49 CFR Part 40.
2. Positive dilute is a verified positive result.

### *Adulterated Specimen*

Will follow Company specific procedures and be subject to disciplinary action as a refusal to be tested.

### *Refuse a Drug/Alcohol Test*

A verbal or written refusal by an employee to provide urine, oral fluid, breathe or other appropriate specimen under this policy. Also, a written conclusion by the MRO that the employee's apparent inability to provide a complete specimen for a drug test constitutes a refusal to provide a specimen.

### *Refuse to Submit to a Drug/Alcohol Test: An Employee:*

1. Fails to show up for any test within a reasonable amount of time (no more than 2 hours) after being directed to do so or to remain at the testing site until the testing process is complete; or

2. Fails to provide a specimen for any drug test required by this part; or
3. In the case of a directly observed or monitored collection in a drug test, fails to permit the observation or monitoring of the provision of a specimen; or
4. Fails to provide a sufficient amount of urine when directed, unless it has been determined through a required medical evaluation, that there was an adequate medical explanation for the failure; or
5. Fails or declines to take a second test as directed following a negative dilute result; or
6. Fails to undergo an additional medical examination, as directed by the MRO as part of the verification process, or as directed concerning the evaluation as part of the "shy bladder" procedures; or
7. Fails to cooperate (e.g., leaves the test site before the collection process is completed, refuses to empty pockets) with any part of the testing process; or
8. Behaves in a confrontational way that disrupts the testing process; or
9. Fails to wash his / her hands after being directed to do so by the collector; or
10. Admits to the collector that he/she adulterated or substituted the specimen; or
11. A substituted specimen, or device used to substitute a specimen is discovered by the collector.

### *Disciplinary Action*

1. The first positive result for the employee will be suspension without pay. An opportunity to participate in a counseling or rehabilitation program (at the employee's own expense or under an employees benefit plan) shall be extended by The Company or affiliates. The employee shall have seven

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calendar days from initial notification to begin reinstatement. If the employee refuses or fails to respond within the seven day period, the individual shall be terminated and may not reapply to the Company or affiliates for twelve months at which time the employee must meet reinstatement requirement.

2. The second such result for the employee will result in termination. An opportunity to participate in a counseling or rehabilitation program (at the employee's own expense or under an employee's benefit plan) shall be extended by The Company or affiliates. Upon successful completion of the counseling or rehabilitation program, the employee must provide proper documentation to the Company and may be requalified for hire. If the employee refuses or fails to complete the program, the individual shall be ineligible for rehire.
3. Third such result for the employee, the individual shall be terminated without eligibility for rehire.

### *The Following Conditions Will Result in Immediate Termination:*

1. Refusal to submit to testing or fully cooperate with the testing process.
2. Refusal to consent to an inspection or search.
3. Possession of a controlled substance in the workplace (other than prescription or non-prescription medication as permitted herein)

### *Reinstatement Eligibility*

Employees that are suspended for failing a drug / alcohol test are eligible for reinstatement only after meeting the following requirement:

1. Any employee who tests positive and chooses not to participate in rehab after

twelve months of suspension, will be subject to follow-up testing.

2. Any employee who tests positive and chooses to participate in rehab will be subject to follow up testing.
3. Documentation that the individual is actively participating in or has successfully completed the recommendations of the SAP.
4. Documentation that the individual has successfully passed a Return to Duty drug / alcohol test. Required documentation will be a Return to Duty letter from the Drug Program Administrator.
5. Reinstatement is conditional upon customer's drug policy as it relates to access to the owner's premises and upon the availability of work at the workplace where the positive test occurred.

### **Employees Right to Retest**

An employee / applicant may request in writing to the MRO a retest of the split sample at second certified laboratory within 72 hours of notification of a positive test result by the MRO. The MRO will provide a list of certified laboratories, other than the laboratory that performed the original testing, for the employee / applicant to select the laboratory to perform the retest. Bottle B of the split sample will be sent to the selected laboratory for retesting. Results of the retest will be reported to the appropriate Company contact and the employee / applicant. The cost of the retest will be the employee / applicants' responsibility. If the results of the retest are negative, the employee will be reimbursed for the expense of the retest, and will be reinstated in the same job without loss of wages and/or benefits.

**Note:** upon making an employee's request to a retest, the employee must agree to provide a copy of the laboratory results to the Company within ten days of receipt. and

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*authorize the MRO to share the results with the Company.*

### Documentation and Records

The Company shall provide confirmation of program compliance to a customer, as requested and for assuring retention of all program documentation and records for five years for positive test results and one year for negative results. Documentation and records required for compliance with the program shall include, but not limited to, Statement of Understanding, Consent to Perform Alcohol and Drug Testing, and Authorization to Release Test Results. All program documentation and records shall be maintained as **CONFIDENTIAL**.

#### *Statement of Understanding*

Each employee assigned to work at a company or affiliate workplace shall read this program and its summary and document his / her understanding by signature in the Statement of Understanding, listed as *Appendix A* of this program. The Statement of Understanding shall be maintained with personnel records.

#### *Consent to perform Alcohol and Drug Testing*

Each individual shall specifically provide authorization to release results to the MRO. Authorization shall be evidenced by signature of the tested individual prior to release of drug test results and may be included in the Authorization and Consent Form. Tested individuals may receive results of his / her own drug tests by written request. Authorizations shall be retained with the program records.

#### *Drug Test Results*

Drug test results (reports) shall be documented by the testing laboratory in accordance with HHS Guidelines and established procedures and the test reports shall be forwarded to the Medical Review Officer. The MRO shall be responsible for advising the Company management of the

results of drug screening tests (positive, negative). Drug test results shall be maintained with program records.

**Note:** *submission to substance abuse testing resulting in a positive maintains an employee's right to receive rehabilitation and reinstatement as specified by this policy.*

#### *Notification Letter*

Notification letter is sent to the employee to inform him / her of the positive test result. Specific rights to re- testing are outlined in this letter.

### Appendices

Appendix A – Statement of Understanding

Appendix B – Consent to Drug Testing

Appendix C – Supervisor's Checklist for Reasonable Suspicion

## Appendix A Statement of Understanding

### DRUG SCREENING PANEL

Drug Screening and Gas Chromatography/Mass Spectrometry (GC/MS) confirmation for six (6) categories of drugs will be required, with the following cut-off limits.

Tests	Screen Cutoff	Confirmation Cutoff
<b>Urine:</b>	(ng/ml)	(ng/ml)
Amphetamines	500	250
Cannabinoids	50	15
Cocaine Metabolite	150	100
Opiates	2000	2000
Phencyclidine	25	25
MDMA	500	250
<b>ALCOHOL (EBT)</b>	.04 or greater	

**Drug Program Summary** – The Company and affiliates Testing Protocol is a 6-panel non-NIDA, non-DOT split specimen.

The Company has made a commitment to its Employees and Customers that it will provide and maintain a drug and alcohol-free work environment. The use of drugs or alcohol in Company and affiliate workplaces poses a serious threat to the safety of our Employees, compromises the quality and reliability of the products and services we owe our Customer and jeopardizes the protection of property owned by The Company, the Customer and/or other Companies who will be working alongside The Company. Therefore, the following activities are prohibited:

1. Use, possession, distribution or sale of alcohol, drugs or drug paraphernalia
2. Being under the influence of drugs or alcohol
3. Use of drugs or alcohol that affects or adversely impairs the individual's work performance or his or her own, or others' safety while at the workplace
4. Use of drugs or alcohol that results in a measurable (threshold level or above) presence of any controlled substance (drug or alcohol) in the body that is set by this policy or a Collective Bargaining Agreement that may apply.

Violation of these prohibitions may result in immediate termination or suspension of the work assignment, and will make the employee ineligible for rehire/reinstatement until the various requirements outlined in the Company Policy have been successfully completed.

### **Statement of Understanding**

As an applicant for work assignment with The Company, I have read the above Drug Free Workplace Program Summary and have received a copy of the Company Drug Abuse and Alcohol Misuse Program. I understand that my work assignment is contingent upon my acceptance of this program and that it is a condition of my continued employment..

I understand that The Company and/or its Customer may conduct drug and alcohol testing that is either allowed by the Drug Abuse and Alcohol Misuse Program, by any applicable Collective Bargaining Agreement or otherwise contractually required by the Owner or Customer. Other unannounced searches and inspections may also be conducted to the extent that they do not violate the terms of any Collective Bargaining Agreement that may apply to my employment. I also acknowledge that a positive drug/alcohol test, or a refusal, may disqualify me from workers compensation benefits and or unemployment compensation benefits.

I understand that the confirmed presence of drugs in my system or my confirmed possession of drugs or alcohol in the workplace may result in the termination or suspension of my employment and make me ineligible for rehire/reinstatement until the various requirements outlined in the Company Policy up to and including, but not limited to:

1. Documentation that the individual is actively participating in or has successfully completed an approved rehabilitation program. Program cost is the responsibility of the individual.
2. Submission to a drug screen and/or an alcohol test (EBT) at time of rehire/reinstatement and for periodic and unannounced testing at the company's discretion for up to five years after rehire/reinstatement.

I understand the company may release my confidential records in the case of administrative or legal action, or any other action that I initiate.

Nothing contained in this program summary or the full policy is intended to violate the terms of any Collective Bargaining Agreement that may apply. Please refer to the full Drug Abuse and Alcohol Misuse Policy for further details.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

## Appendix B Consent to Substance Abuse Testing

I, \_\_\_\_\_ (print name), hereby voluntarily consent to provide a specimen for drug and alcohol testing, and searches to be conducted by personnel contracted to perform these services for APi Group Inc in accordance with the Drug Abuse and Alcohol Misuse Policy as well as any applicable collective bargaining agreement. I voluntarily consent to the taking of a specimen of blood/urine, oral fluid or breath for testing to determine the presence of illegal or unauthorized substances in my body system. I understand that refusal to consent to the tests, or a positive test result, or a prohibited item found in my possession or personal effects which could be used to defraud the test, will be cause for the company to withdraw their offer of employment if I am an applicant for employment; or to take disciplinary action, including discharge, if I am an employee.

### Authorization to Release Information

I authorize collectors, physicians, MRO's, laboratories, medical technicians, law enforcement officers, or other qualified personnel appointed by the Company to release to the management of The Company and Affiliates information regarding testing conducted and the results of the tests performed on the specimen provided by me. This authorization to disclose information terminates after \_\_\_\_/\_\_\_\_/\_\_\_\_ (one year from today.)

I authorize APi to release test(s) results to the Owner of a jobsite when these results are required as a condition of my access to that jobsite.

### Additional Comments:

I have been advised of my rights to receive a copy of this authorization, the results of the test and to request confirmatory retest of the split specimen should I so elect.

I have previously tested through the API Drug/Alcohol Abuse Program: Yes  No

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*Donor Signature*

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*Management Signature*

cc: Donor  
Employee Confidential File

**Appendix C  
Supervisor's Checklist for Reasonable Suspicion**

**Contemporaneous Observation Checklist  
(Strictly Confidential)**

Employee Name	Function	Incident Date	Time
Name Supervisor 1	Title	Location Incident Observed	
Name Supervisor 2	Title	Concurrence (In person/phone/other)	

This checklist is to be completed when an incident has occurred which provides reasonable suspicion that an employee is under the influence of a prohibited drug or alcohol. You should note all contemporaneous pertinent behavior and physical signs or symptoms which lead you to reasonably believe that the employee has recently used or is under the influence of a prohibited substance. Mark each applicable item on this form and add any additional facts or circumstances which you have noted. (NOTE: If there are long-term behavioral indicators of substance abuse which support this checklist, please also include the Reasonable Suspicion Long-Term Observation Checklist).

**A. NATURE OF INCIDENT/CAUSE FOR SUSPICION**

- ( ) 1. Observed possession or use of an unknown substance
- ( ) 2. Apparent drug or alcohol intoxication
- ( ) 3. Observed abnormal or erratic behavior consistent with drugs or alcohol
- ( ) 4. Arrest or conviction for drug-related offense
- ( ) 5. Other observations consistent with prohibited drug use or alcohol misuse (e.g., reports by passenger or reliable/credible third party, flagrant violation of safety or serious misconduct, fighting or argumentative/abusive language, refusal of supervisor instruction, unauthorized absence on the job).

NOTE: PLEASE DESCRIBE BELOW

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**B. BEHAVIORAL INDICATORS NOTED**

- ( ) 1. Verbal abusiveness
- ( ) 2. Physical abusiveness
- ( ) 3. Extreme aggressiveness or agitation
- ( ) 4. Withdrawal, depression, tearfulness, or unresponsiveness
- ( ) 5. Other erratic or inappropriate behavior (e.g., hallucinations, disoriented, excessive euphoria, talkativeness, confused) NOTE: PLEASE DESCRIBE BELOW

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**C. PHYSICAL SIGNS OR SYMPTOMS**

- ( ) 1. Possessing, dispensing or using prohibited substances
- ( ) 2. Slurred or incoherent speech
- ( ) 3. Unsteady gait or loss of physical control, poor coordination
- ( ) 4. Dilated or constricted pupils or unusual eye movement
- ( ) 5. Bloodshot or watery eyes
- ( ) 6. Extreme fatigue or sleeping on the job
- ( ) 7. Excessive sweating or clamminess of skin
- ( ) 8. Flushed or very pale face
- ( ) 9. Highly excited or nervous
- ( ) 10. Nausea or vomiting
- ( ) 11. Odor of an alcoholic beverage
- ( ) 12. Odor of marijuana
- ( ) 13. Disheveled appearance or out of uniform
- ( ) 14. Dry mouth (frequent swallowing/lip wetting)
- ( ) 15. Dizziness or fainting
- ( ) 16. Shaking hands or body tremors/twitching
- ( ) 17. Rapid breathing/breathing irregularly/difficulty breathing/slow breathing
- ( ) 18. Runny nose or sores around the nose
- ( ) 19. Inappropriate wearing of sunglasses
- ( ) 20. Puncture marks or "tracks" over veins
- ( ) 21. Other. PLEASE DESCRIBE BELOW:

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**D. WRITTEN SUMMARY**

Please summarize the facts and circumstances of the incident, employee response, supervisor actions taken, and any other pertinent information not previously noted. Please note the date, time, and location(s) of the Reasonable Cause observation(s). Note if the employee REFUSED the test. Attach additional sheets as needed.

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Signature of  
Supervisor

Date/Time

Signature of  
Supervisor 2

Date/Time

**Appendix C**  
**Supervisor's Checklist for Reasonable Suspicion**

**Long Term Observation Checklist**  
**(Strictly Confidential)**

A. GENERAL JOB PERFORMANCE

YES NO

- 1. Excessive use of sick leave
- 2. Frequent Monday/Friday/after holiday absences or similar pattern
- 3. Frequent unexplained disappearances/trips to rest room, etc.
- 4. Excessive "extension" of breaks or lunch
- 5. Frequently leaves work early
- 6. Frequent personal phone calls
- 7. Increased concern about, or instances of, safety violations
- 8. Experiences, or causes, job accidents
- 9. Major changes in duties or responsibilities
- 10. Interferes with or ignores established procedures
- 11. Inability to follow through on performance recommendation

B. PERSONAL MATTERS

YES NO

- 1. Changes in or unusual personal appearance (dress, hygiene)
- 2. Changes in usual speech (incoherent, loud, stuttering or slurred)
- 3. Changes in or unusual facial expressions, flushed or clammy face, bloodshot eyes
- 4. Much increased or reduced level of activity (fatigue, sleeping on the job, high activity)
- 5. Changes in usual topics of discussion
- 6. Increasingly irritable, tearful, excitable, nervous
- 7. Persistently boisterous or rambunctious
- 8. Unpredictable or out-of-control displays of emotions
- 9. Engages in discussions about obtaining drugs or alcohol
- 10. Has personal relationship problems (spouse, girl/boyfriend, children, in-laws)
- 11. Makes unfounded accusations toward others (i.e., has feelings of persecution)
- 12. Secretive or furtive
- 13. Memory problems (difficulty recalling instructions, data, past behavior)
- 14. Frequent colds, flu, or other illness
- 15. Excessive fatigue
- 16. Makes unreliable or false statements
- 17. Unrealistic self-appraisal or grandiose statements
- 18. Temper tantrums or angry outbursts
- 19. Demanding, rigid, inflexible
- 20. Major changes in physical health
- 21. Other, please specify  
Other information/observations--attach additional sheets if necessary

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Signature of  
Supervisor

Date/Time

Signature of  
Supervisor

Date/Time

**Appendix C**  
**Supervisor's Checklist for Reasonable Suspicion**  
**Guidelines and Tips for Supervisory Intervention**

**Supervisor Guideline Steps:**

- Eye witness event or behavior
- Document on Reasonable Suspicion Checklist behavior/situation as it relates to job performance and sign bottom of form
- Contact employee's supervisors to inform of situation and ask for assistance
- Drive employee to collection site

**Supervisor Intervention Tips:**

Do Not...

- Diagnose
- Moralize
- Be overly sympathetic
- Cover up
- Talk about with others

Do...

- Know the policy
- Focus on job performance
- Be specific
- Be respectful
- Document

**Reasonable Cause Script:**

( \_\_\_\_\_ ) (employee name), as you know the API Group has a Drug Abuse and Alcohol Misuse Policy and as an employee of API Group you have agreed to abide by its policy to prevent drug and alcohol abuse in the workplace.

At this time, as your supervisor I am instructing you that a reasonable cause determination of drug or alcohol use has been made and you must submit to a drug test and/or breath alcohol test at this time.

An API Group representative will go with you to the collection site.

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*Suspected employee is not allowed to drive himself/herself to the collection site location. If an employee leaves the premises in a private vehicle against the supervisor's instruction, the Supervisor may consider notifying local authorities.*

# Criminal Background Check Policy

## Section 3.4B

### Purpose

To provide a standard procedure for verifying the criminal background and other information of applicants and employees, prior to and during employment at API Group, Inc. and Subsidiaries. Such procedures may include requirements from a general contractor and owner of a jobsite..

### Policy

To provide for the safety of other employees and clients, background checks are required on applicant for employment who is offered a position at API Group, Inc. and Subsidiaries. Background checks are conducted to verify the accuracy of the information provided so that applicants meet the qualifications for the position.

Background checks will include a seven year criminal history search, sex offender search, address/name locator search and may include, depending on client or job position: employment verification, and driving reports, as it relates to position.

Periodically, current employees may be asked to disclose if they have been convicted of a crime or may be asked to submit to a background check. Failure to comply with this request may result in termination of employment.

A background check may be requested for current employees when they transfer to a position that requires an additional background check or when there is an identified concern or a disclosure of information that could pose a threat to client or employee safety, and/or create a negative operational impact on API Group, Inc. and Subsidiaries.

### Procedure

#### *Background Check Procedure*

Employment is contingent on successful completion of a background check. Once an offer is made, the applicant must submit background information and authorize the

background check to be completed. The background must be submitted, received, reviewed and approved by Human Resources prior to the start of service at API Group, Inc. and Subsidiaries.

Discrepancies in the information contained in the application and information in the background check or conviction of a crime may result in withdrawal of the offer of a position or a delay in the start date pending additional investigation.

If the individual has been convicted of a crime, the criteria below will be used to determine if their position at API Group, Inc. and Subsidiaries will be terminated.

#### *Criteria for Withdrawing Offer or Terminating Position at API Group, Inc. and Subsidiaries*

If a background check reveals that a staff member was untruthful in an application or disclosure form, the offer will be withdrawn or the position terminated unless an exception is approved pursuant to the criteria in Exception Criteria below.

Conviction of a crime does not necessarily result in a withdrawal of an offer or termination of a position.

#### **1. Mandatory Disqualification (Red)**

Conviction or pending charges of the following felony crimes is inconsistent with the safe workplace policies of the API Group, Inc. and Subsidiaries and results in mandatory withdrawal of an offer or termination of an individual's position:

- Murder
- Solicitation of children to engage in sexual conduct
- Abuse, neglect or exploitation of a vulnerable adult or child
- Aggravated robbery
- Arson
- Assault

# Criminal Background Check Policy

## Section 3.4B

- Assault with a dangerous weapon or with great bodily injury
- Battery
- Felony level conviction related to theft, fraud, forgery, receiving stolen property
- Kidnapping
- Manslaughter
- Sexual assault
- Appears as a Sexual Offender
- Evidence that the individual is rehabilitated
- The safety of API Group, Inc. and Subsidiaries' clients and staff
- Any laws or regulations applicable to the particular position

It is the responsibility of the applicant to provide accurate information related to conviction, pardons, a record having been expunged, or other information related to the granting of an exception to disqualification. Exceptions to disqualification may be made only with the approval of the Company Safety Management.

### 2. Exception Criteria (Yellow)

The following criteria shall be used for evaluating all other crimes not listed in Section 1 above, and in evaluating whether to grant an exception for failure to disclose disqualifying crimes:

- Currently has an active warrant(s)
- Determination that untruthful application or disclosure form was not intentional or grossly negligent or unreasonable under circumstances
- Nature/severity of crime
- Time since crime occurred/sentence completed
- Relation to job duties
- Whether the crime has been expunged from the individual's record or the individual has been pardoned
- Evidence that the individual is rehabilitated
- The safety of API Group, Inc. and Subsidiaries' clients and staff

The following criteria are used for evaluating all other crimes and any exceptions to this policy:

- Nature/severity of crime
- Time since crime occurred/sentence completed
- Whether the crime has been expunged from the individual's record or the individual has been pardoned

### Arrest for Crimes

#### Purpose

This policy establishes guidelines for dealing with an employee who has been arrested for a crime, but for which no conviction has been obtained.

#### Policy

Appropriate actions will be taken based on an investigation of the nature and circumstances for the offense and the employee's job responsibilities.

#### Procedures

A crime is defined as follows:

- May be punishable by imprisonment; or
- Implicates clients safety or trust; or
- Relates to an employee's job (e.g. petty theft for an employee who has access to money or patient valuables).
- Implicates illegal drug or alcohol abuse outside the workplace.

An employee arrested for a crime must notify the supervisor no later than five (5) days after the arrest. At the time the supervisor becomes aware that an employee has been arrested for a crime, the supervisor must contact the API Group, Inc. Safety and Risk Professional assigned to his/her area for guidance.

# Criminal Background Check Policy

## Section 3.4B

The employee may be placed on an unpaid leave during an internal investigation to determine whether continued employment is appropriate, and any conditions or such continued employment.

### **Appendices**

Appendix A - Criminal Background Check Release Form

Appendix B - Criminal Policy Grade Assessment Sheet

Appendix C - i) Pre-Adverse Action Letter (New Hire) and ii) Adverse Action Letter (New Hire)

Appendix D - i) Pre-Adverse Action Letter (Current Employee) and ii) Adverse Action Letter (Current Employee)

Appendix E - Summary of Rights Under the Fair Credit Reporting Act



**Appendix B  
Criminal Policy Grade Assessment Sheet**

**Grade I – Green**

- No Discrepancies

Required Action: None

**Grade II – Yellow**

The following criteria shall be used for evaluating all other crimes not listed in Grade III Red below, and in evaluating whether to grant an exception for failure to disclose disqualifying crimes:

- Currently has an active warrant(s).
- Determination that untruthful application or disclosure form was not intentional or grossly negligent or unreasonable under the circumstances.
- Nature/Severity of crime
- Time Since crime occurred/sentence completed
- Relation to job duties
- Whether the crime has been expunged from the individual's record or the individual has been pardoned
- Evidence that the individual is rehabilitated
- The safety of APi Group, Inc. clients and staff

Required Action: Review criteria above.

**Grade III – Red**

Conviction or pending charges of the following felony crimes results in Mandatory withdrawal of an offer or termination of an individual's position

- Murder
- Solicitation of children to engage in sexual conduct
- Abuse, neglect or exploitation of a vulnerable adult or child
- Aggravated robbery
- Arson
- Assault
- Assault with a dangerous weapon or with great bodily injury
- Battery
- Felony level conviction related to theft, fraud, forgery, receiving stolen property
- Kidnapping
- Manslaughter
- Sexual assault
- Appears as a Sexual Offender

Required Action: Mandatory Disqualification

**Appendix C (i)**  
**Pre-Adverse Action Letter**  
**(New Hire Only)**

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

Recently you applied for a position at APi Group and Subsidiaries. Part of the application process includes authorization for a background verification to be done by a consumer reporting agency.

This communication is to notify you that we are considering making an adverse employment decision based on our hiring criteria, including information received in your background verification report from Verified Credentials, Inc.

A copy of your report is enclosed, as well as a copy of your rights under the Fair Credit Reporting Act. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc. within five business days of the receipt of this letter.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)

(Your Title)

Attachments: Copy of VCI Report  
Copy of "A Summary of Your Rights under the FCRA"

CC: Applicant File  
Chris Rafferty

**Appendix C (ii)  
Adverse Action Letter  
(New Hire Only)**

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

We regret to inform you that based on our hiring criteria we are unable to consider you further for an employment opportunity with our organization. This decision was made in part from the information we receiver from Verified Credentials, Inc., our employment screening vendor. Verified Credentials, Inc. does not make these decisions and is unable to provide you with specific reasons for them.

In accordance with the Fair Credit Reporting Act, you previously received a copy of this information and a copy of your rights under the Act. You also have the right to obtain a free copy of the report within 60 days of the receipt of this letter by contacting Verified Credentials, Inc at the address and telephone number listed below. Please refer to these documents if you have further questions. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

CC: Applicant File  
Chris Rafferty

**Appendix D (i)  
Pre-Adverse Action Letter  
(Current Employee Only)**

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

Recently APi Group and Subsidiaries submitted information for a background check. Part of the employee retention process includes authorization for a background verification to be done by a consumer reporting agency.

This communication is to notify you that we are considering making an adverse employment decision based on our hiring criteria, including information received in your background verification report from Verified Credentials, Inc.

A copy of your report is enclosed, as well as a copy of your rights under the Fair Credit Reporting Act. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc. within five business days of the receipt of this letter.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

Attachments: Copy of VCI Report  
Copy of "A Summary of Your Rights under the FCRA"

CC: Employee File

**Appendix D (ii)  
Adverse Action Letter  
(Current Employee Only)**

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

We regret to inform you that based on our employee retention criteria we are unable to accommodate you further for employment with our organization. This decision was made in part from the information we received from Verified Credentials, Inc., our employment screening vendor. Verified Credentials, Inc. does not make these decisions and is unable to provide you with specific reasons for them.

In accordance with the Fair Credit Reporting Act, you previously received a copy of this information and a copy of your rights under the Act. You also have the right to obtain a free copy of the report within 60 days of the receipt of this letter by contacting Verified Credentials, Inc. at the address and telephone number listed below. Please refer to these documents if you have further questions. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

CC: Employee File  
Chris Rafferty

## Appendix E Summary of Rights Under the Fair Credit Reporting Act

**Para informacion en espanol, visite [www.ftc.gov/credit](http://www.ftc.gov/credit) o escribe a la FTC Consumer Response Center, Room 130-A 600 Pennsylvania Ave. N.W., Washington, D.C. 20580.**

### A Summary of Your Rights Under the Fair Credit Reporting Act

The federal Fair Credit Reporting Act (FCRA) promotes the accuracy, fairness, and privacy of information in the files of consumer reporting agencies. There are many types of consumer reporting agencies, including credit bureaus and specialty agencies (such as agencies that sell information about check writing histories, medical records, and rental history records). Here is a summary of your major rights under the FCRA. **For more information, including information about additional rights, go to [www.ftc.gov/credit](http://www.ftc.gov/credit) or write to: Consumer Response Center, Room 130-A, Federal Trade Commission, 600 Pennsylvania Ave. N.W., Washington, D.C. 20580.**

- **You must be told if information in your file has been used against you.** Anyone who uses a credit report or another type of consumer report to deny your application for credit, insurance, or employment – or to take another adverse action against you – must tell you, and must give you the name, address, and phone number of the agency that provided the information.
- **You have the right to know what is in your file.** You may request and obtain all the information about you in the files of a consumer reporting agency (your “file disclosure”). You will be required to provide proper identification, which may include your Social Security number. In many cases, the disclosure will be free. You are entitled to a free file disclosure if:
  - a person has taken adverse action against you because of information in your credit report;
  - you are the victim of identify theft and place a fraud alert in your file;
  - your file contains inaccurate information as a result of fraud;
  - you are on public assistance;
  - you are unemployed but expect to apply for employment within 60 days. In addition, by September 2005 all consumers will be entitled to one free disclosure every 12 months upon request from each nationwide credit bureau and from nationwide specialty consumer reporting agencies. See [www.ftc.gov/credit](http://www.ftc.gov/credit) for additional information.
- **You have the right to ask for a credit score.** Credit scores are numerical summaries of your credit-worthiness based on information from credit bureaus. You may request a credit score from consumer reporting agencies that create scores or distribute scores used in residential real property loans, but you will have to pay for it. In some mortgage transactions, you will receive credit score information for free from the mortgage lender.
- **You have the right to dispute incomplete or inaccurate information.** If you identify information in your file that is incomplete or inaccurate, and report it to the consumer reporting agency, the agency must investigate unless your dispute is frivolous. See [www.ftc.gov/credit](http://www.ftc.gov/credit) for an explanation of dispute procedures.
- **Consumer reporting agencies must correct or delete inaccurate, incomplete, or unverifiable information.** Inaccurate, incomplete or unverifiable information must be removed or corrected, usually within 30 days. However, a consumer reporting agency may continue to report information it has verified as accurate.
- **Consumer reporting agencies may not report outdated negative information.** In most cases, a consumer reporting agency may not report negative information that is more than seven years old, or bankruptcies that are more than 10 years old.
- **Access to your file is limited.** A consumer reporting agency may provide information about you only to people with a valid need -- usually to consider an application with a creditor, insurer, employer, landlord, or other business. The FCRA specifies those with a valid need for access.
- **You must give your consent for reports to be provided to employers.** A consumer reporting agency may not give out information about you to your employer, or a potential employer, without your written consent given to the employer. Written consent generally is not required in the trucking

industry. For more information, go to [www.ftc.gov/credit](http://www.ftc.gov/credit).

- **You may limit “prescreened” offers of credit and insurance you get based on information in your credit report.** Unsolicited “prescreened” offers for credit and insurance must include a toll-free phone number you can call if you choose to remove your name and address from the lists these offers are based on. You may opt-out with the nationwide credit bureaus at 1-888-567-8688.
- **You may seek damages from violators.** If a consumer reporting agency, or, in some cases, a user of consumer reports or a furnisher of information to a consumer reporting agency violates the FCRA, you may be able to sue in state or federal court.
- **Identity theft victims and active duty military personnel have additional rights.** For more information, visit [www.ftc.gov/credit](http://www.ftc.gov/credit).

**States may enforce the FCRA, and many states have their own consumer reporting laws. In some cases, you may have more rights under state law. For more information, contact your state or local consumer protection agency or your state Attorney General. Federal enforcers are:**

TYPE OF BUSINESS:	CONTACT:
Consumer reporting agencies, creditors and others not listed below	Federal Trade Commission: Consumer Response Center -FCRA Washington, DC 20580 1-877-382-4357
National banks, federal branches/agencies of foreign banks (word "National" or initials "N.A." appear in or after bank's name)	Office of the Comptroller of the Currency Compliance Management, Mail Stop 6-6 Washington, DC 20219 800-613-6743
Federal Reserve System member banks (except national banks, and federal branches/agencies of foreign banks)	Federal Reserve Board Division of Consumer & Community Affairs Washington, DC 20551 202-452-3693
Savings associations and federally chartered savings banks (word "Federal" or initials "F.S.B." appear in federal institution's name)	Office of Thrift Supervision Consumer Complaints Washington, DC 20552 800-842-6929
Federal credit unions (words "Federal Credit Union" appear in institution's name)	National Credit Union Administration 1775 Duke Street Alexandria, VA 22314 703-519-4600
State-chartered banks that are not members of the Federal Reserve System	Federal Deposit Insurance Corporation Consumer Response Center, 2345 Grand Avenue, Suite 100 Kansas City, Missouri 64108-2638 1-877-275-3342
Air, surface, or rail common carriers regulated by former Civil Aeronautics Board or Interstate Commerce Commission	Department of Transportation , Office of Financial Management Washington, DC 20590 202-366-1306
Activities subject to the Packers and Stockyards Act, 1921	Department of Agriculture Office of Deputy Administrator -GIPSA Washington, DC 20250 202-720-7051

# Loss Reporting and Recording Occupational Injuries and Illnesses

## Section 3.5

### Purpose

The Company has developed the following policy and associated procedures for reporting personal injuries and illnesses, property damage, general liability, and vehicle accidents. Each Company shall report any and all claims to the APi Group Risk Management Department for claim administration, documentation of required forms and records, and subsequent notification to applicable insurance and regulatory agencies.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers / Supervisors by investigating all injuries, illnesses, claims, and all other incidents that have the potential to evolve into a claim (whether an employee or non-employee). This individual shall assist or directly handle initial reporting of employee injuries and illnesses to the APi Risk Management Department. Safety Professionals shall assist in the coordination of all return-to-work issues associated with injured employees. These individuals shall assist the APi Risk Management Department in on-going claim's administration and investigation as applicable.

#### *APi Risk Management Department*

Shall be responsible for documenting all employee injuries and illnesses, property damage, vehicle accidents, or other liability claims and reporting those incidents to the insurance carrier and other agencies as required by applicable laws. The APi Risk Management Department shall also be responsible for the coordination and oversight of all claim administration once the claim has

been reported. This department shall openly and periodically communicate relevant claim issues to employees and Safety Managers as applicable.

#### *Employee*

Shall have read and understood their responsibilities with respect to reporting injuries, illnesses, and property damage and be held accountable for timely notification of such incidents.

### Reporting Workplace Injuries and Illnesses

Employees sustaining a workplace injury or illness shall report such incident immediately to their Supervisor upon occurrence.

In every case where a personal injury or illness requires evaluation from a physician, it shall be the responsibility of the Job-Site Superintendent, or their designee, to provide the physician with a Report of Work Ability form, listed as *Appendix A* of this policy, unless the provider has a similar document in-house. The Report of Work Ability is to be completed by the physician and returned to the Job-Site Supervisor for review and documentation. The report shall be furnished to the applicable Safety Manager for review and determination of Return-to-Work issues, if necessary. The report shall also be used to assist in completing the Employer's First Report of Injury form for the State in which the injury occurred. The Safety Manager shall communicate the OSHA Recordability classification, if known, to the APi Risk Management Department upon submittal of all required paperwork.

Employees receiving treatment from a physician shall be accompanied by a Supervisor or Safety Manager whenever feasible. This individual shall consult with the physician with respect to the employee's diagnosis and communicate the desire to discuss and implement the Company's Return-to-Work Program, including modified or restricted duty alternatives as applicable. In addition to the documents afore-mentioned,

# Loss Reporting and Recording Occupational Injuries and Illnesses

## Section 3.5

the Supervisor or Safety Manager shall assure that a Supervisor's Report of Injury / Illness, listed as *Appendix B* in this section, Employee's Report of Injury / Illness, listed as *Appendix C* of this section, Witness Statement, listed as *Appendix D* of this section, and other applicable documents attached as appendices in this policy have been completed and submitted to the APi Group Risk Management Department.

The Job-Site Supervisor or Manager shall immediately notify the Safety Manager and APi Corporate Safety Director in the event of any employee fatality or in-patient hospital stays involving 3 or more employees. The applicable Safety Manager shall be responsible for notifying the appropriate OSHA office for either of the above situations within 8 hours of occurrence.

### *Lost Time Injuries*

Employees with injuries resulting in lost work time shall require immediate notification by the applicable Safety Manager to the APi Group Risk Management Department. Employees returning to work from lost time status shall provide a Report of Work Ability to the Job-Site Superintendent that indicates their current work status.

### *OSHA Recordkeeping Requirements*

According to the Occupational Safety and Health Administration (OSHA), employers covered by the Act must keep records of occupational injuries and illnesses. OSHA has established criteria that require employers to log those injuries and illnesses that are "Recordable" by definition on the OSHA 300 Form. This log shall be maintained by the APi Risk Management Department. The Safety Manager at each Company shall classify all injuries and illnesses with respect to OSHA Recordability requirements and communicate such status to the APi Group Risk Management Department.

A summary of occupational injuries and illnesses, OSHA Form 300-A will be prepared

by the APi Group Risk Management Department and sent to all member companies for internal posting for the previous year's activities. This summary must be posted in a conspicuous location accessible to all employees. The summary is required to be posted, at a minimum, from February 1<sup>st</sup> through April 30<sup>th</sup> each year.

### **Property Damage Reporting**

#### *Damage to Company Property and Leased or Rented Equipment*

A Loss Report, listed as *Appendix E* of this section, shall be prepared for any damage to Company-owned buildings, contents, equipment, materials, and / or supplies used in Company operations. The incident and related documentation shall be promptly reported to the APi Group Risk Department and applicable Safety Manager.

An investigation of the incident shall be performed as soon as feasible, which should include photos of the damage incurred.

### **General Liability Reporting**

#### *Damage to Non-Company Property Arising out of Company Operations*

A Loss Report, also listed as *Appendix E* of this section, shall also be prepared for any damage to property of others or bodily injury to others during construction or operations including: damage to customer's equipment, buildings, or other property in which the Company may be liable.

An investigation of the incident shall be performed as soon as feasible, which should include photos of the damage incurred.

### **Vehicle Accident Reporting**

Every accident involving a company-owned privately-owned, or leased or rented vehicle used on Company business shall be reported promptly utilizing the Motor Vehicle Accident Report, listed as *Appendix F* of this section,

# Loss Reporting and Recording Occupational Injuries and Illnesses

## Section 3.5

and submitted to the applicable Safety Manager and APi Group Risk Management Department.

An investigation of the accident shall be performed as soon as feasible, which should include photos of the damage incurred by one or all parties involved in the incident. Company-owned vehicles are outfitted with a vehicle accident reporting kit that contains all applicable accident reporting documents. The Company's Fleet Policy, listed as Section 15.2 of this Manual, has additional provisions for vehicle accidents that shall be followed.

### Training

All applicable employees shall receive initial training on the contents of this program upon hire and periodically thereafter.

### Appendices

Appendix A – Report of Work Ability

Appendix B – Supervisor's Report of Injury / Illness

Appendix C – Employee's Report of Injury / Illness

Appendix D – Witness Statement

Appendix E – General Liability / Property Loss Report

Appendix F – Motor Vehicle Accident Report

Appendix G – Authorization for Release of Medical Records

*(Note: Refer to Section 3.4, "Drug Abuse and Alcohol Misuse Policy" for Statement of Understanding and Consent to Drug Testing forms.)*

## Appendix A Report of Workability

Job location: \_\_\_\_\_ Date: \_\_\_\_\_ Appointment Time: \_\_\_\_\_

Employee: \_\_\_\_\_ SS #: \_\_\_\_\_ DOB: \_\_\_\_\_

Date of incident: \_\_\_\_\_ Employer: \_\_\_\_\_

Contact person: \_\_\_\_\_ Fax #: \_\_\_\_\_

Diagnosis: \_\_\_\_\_

- Work related                      Permanent Disability?  Likely     Not likely     Undetermined  
 Not work related  
 Undetermined                      MMI?                       No     Yes    If yes, give date: \_\_\_\_\_  
 Return to work with no limitations on \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Return to work with limitations on \_\_\_\_/\_\_\_\_/\_\_\_\_ through \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Unable to work from \_\_\_\_/\_\_\_\_/\_\_\_\_ through \_\_\_\_/\_\_\_\_/\_\_\_\_

If employee is not accompanied by an employer representative or employee is not able to return to unrestricted work, call \_\_\_\_\_ at \_\_\_\_\_ company or APi Risk Management at 651-558-3305.

### EMPLOYEE CAPABILITIES

	Occasional	Frequent	Continuous		Occasional	Frequent	Continuous
	0-33%	34-66%	67-100%		0-33%	34-66%	67-100%
<b>Lift/Carry:</b>				Bend ____ degrees			
0-10 lbs	—	—	—	Twist/Turn	—	—	—
11-20 lbs	—	—	—	Kneel/Squat	—	—	—
21-50 lbs	—	—	—	Sit	—	—	—
51-100 lbs	—	—	—	Stand/Walk	—	—	—
<b>Push/Pull:</b>				Overhead Reaching	—	—	—
0-25 lbs	—	—	—	Ladder/Stair Climb	—	—	—
26-50 lbs	—	—	—	Rotate			
51-75 lbs	—	—	—	activities/positions	—	—	—
76-100 lbs	—	—	—				

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- Keep wound clean and dry. Change dressing every: \_\_\_\_\_  
 Medication: \_\_\_\_\_ (as directed) *May cause drowsiness*  
 Physical Therapy: \_\_\_\_\_  
 Specialist Referral: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Return to clinic on: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

*The above has been discussed with the employee.*  
 Physician signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Appendix B

### Page 2

#### Completion Instructions for Supervisor's Report of Injury / Illness (SRI)

The primary purpose of the SRI is to aid in the investigation of an injury or illness. It is also used to report the accident to the central office where the First Report of Injury is then completed by administrative personnel. The SRI should be filled out as soon as possible after the accident.

If the SRI is incomplete or delayed, corrective action may also be delayed. A delay in taking corrective action can result in a similar accident happening again.

The initial information asked for at the top of the SRI concerning the injured person's name, occupation, age and job history and loss of time from work is self-explanatory but very necessary for eventual completion of the First Report of Injury.

The following is a line by line set of instructions for completion of the SRI by the supervisor of the injured employee. Concrete examples of important parts of the form are given for your use. This report should not be completed by the injured employee. However, consult with the employee and any witnesses to obtain information and provide guidance in follow-up for Remedy and Corrective Action.

#### Questions

1. Was proper instruction given to the employee on how to do the job safely? It is the supervisor's responsibility to instruct their employees on how to do each job efficiently and safely.
2. Referred to in question #1.
3. The supervisor should have told the employee what personal protective equipment is necessary to do the job. Did the employee wear the personal protective equipment when this job was being done?
4. Was the work area clean and well organized? i.e.: boards on the floor, wet floor, spilled food, etc.
5. Was there inadequate supervision?
6. Was the injured person using equipment that was unsafe and in need of repair? i.e.: broken ladder, bad electric cord on drill, etc.
7. If a guard were built would it prevent another accident from happening? i.e.: guard around the belts and pulleys, railing properly in place, guard on saw, etc.
8. Did this person have any bodily defects that helped the accident to happen? i.e.: poor vision, previous back injury, etc.
9. An Unsafe Act is something that the injured person or another person did which he or she should not have done that led to the accident. Below is a list of the most common unsafe acts and contributing factors:
10. The accident should have been reported immediately to the supervisor, was it?

#### Accident

1. Describe what the injured was doing at the time of the accident.
2. What happened?
3. Who was involved, what witnesses were there?
4. What injuries resulted? Example: John was drilling a hole in the ceiling and chips of plaster fell into his eye. (This answers questions 1 and 2.) John got chips of plaster in his eye, resulting in a scratch on his eye. John was wearing his prescription glasses (This answers questions 3 and 4.) Also, please note the number of employees at this work location and the names of witnesses, if any.

#### Unsafe Act

Refer to question #9 above. Example: Using drill in overhead position without wearing proper eye protection.

#### Unsafe Conditions

What conditions or circumstances caused the accident to happen? Example: John was not wearing proper personal protective equipment. Other examples are listed below.

#### **UNSAFE CONDITIONS**

- |   |                          |                      |
|---|--------------------------|----------------------|
| 1. Defective tools, equipment, substances | 4. Improper illumination | 7. Poor housekeeping |
| 2. Unsafe design or construction          | 5. Improper ventilation  | 8. Congested area    |
| 3. Hazardous arrangement                  | 6. Improper dress        | 9. Other             |

Remedy: Example: John was re-instructed to wear proper personal protective equipment such as goggles or face shield when drilling overhead.

Action Taken: Example: Standard safety policy requires use of personal protective equipment. This policy should be strictly enforced by the supervisors. Follow-up action taken with crew during toolbox talk.

#### Medical Care

*This information is needed to fill out the First Report of Injury, and process claim property.*

Suspensions/Concerns. (Do you have any reason to question the validity of this claim?) As a general rule, if the employee is injured while at work, that injury is covered under workers' compensation. However, if you as a supervisor, have reason to suspect that the injury did not occur at work, please explain.

**Appendix C**  
**Employee's Report of Injury / Illness**

Name of injured person: \_\_\_\_\_

Address: \_\_\_\_\_

Home phone: \_\_\_\_\_ SS#: \_\_\_\_\_

Birth date: \_\_\_\_\_ Sex: M \_\_\_\_\_ F \_\_\_\_\_ Marital status: Single \_\_\_\_\_ Married \_\_\_\_\_

Occupation: \_\_\_\_\_ Date of hire: \_\_\_\_\_

Date of injury: \_\_\_\_\_ Time of injury: \_\_\_\_\_

Interviewed by/Dictated to: \_\_\_\_\_

Superintendent: \_\_\_\_\_ Foreman: \_\_\_\_\_

Injured Employee Statement (State specific job being done, machinery, tools, or objects involved and factors contributing to the accident): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Nature of Injury: \_\_\_\_\_

Part of body injured: \_\_\_\_\_ Have you had prior injuries to this body part? \_\_\_\_\_

Did the actions of another party contribute to your injury? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please explain & name those parties: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name & address of treating physician or hospital/clinic: \_\_\_\_\_

\_\_\_\_\_  
Name & address of witness: \_\_\_\_\_  
\_\_\_\_\_

*I certify that all the above statements are true to the best of my knowledge.*

Signature of injured employee: \_\_\_\_\_

Date: \_\_\_\_\_ Job Location: \_\_\_\_\_

**Appendix D  
Witness Statement of Injury / Illness Report**

Name of employee injured: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Address: \_\_\_\_\_

Home phone: \_\_\_\_\_ Date of birth: \_\_\_\_\_ SS #: \_\_\_\_\_

Hire date: \_\_\_\_\_ Accident date: \_\_\_\_\_ Time of incident: \_\_\_\_\_

Accident location: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

You have been identified as a witness to a co-worker's injury / illness in the workplace. Please describe your understanding of how this injury / illness occurred below, including the job being performed; machinery or tools being used; and any factor or condition you believe may have contributed to the accident at the time of the injury / illness:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Type of injury (cut, sprain, etc.): \_\_\_\_\_

Part of body affected: \_\_\_\_\_

*The above statements are true and complete, to the best of my knowledge*

Signature of witness: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_

**Appendix E**  
**General Liability / Property Loss Report**

Damage / Loss to Property of Others or Injury to Others or Damage / Loss to Owned / Rented / Leased Property

<b>INSTRUCTIONS:</b>	<ol style="list-style-type: none"><li>1. Secure any material / equipment involved in loss / failure.</li><li>2. Take photos of origin of loss.</li><li>3. Take photos of damaged property.</li><li>4. Contact authorities, as applicable.</li><li>5. Contact API Group, Inc. Risk Management</li><li>6. Itemize all property damaged / stolen / destroyed.</li><li>7. <b>DO NOT GIVE STATEMENTS TO OUTSIDE PARTIES.</b></li></ol>
----------------------	---

Company: \_\_\_\_\_ Branch: \_\_\_\_\_

Date of Loss: \_\_\_\_\_ Time of Loss: \_\_\_\_\_

Address of Jobsite or Loss Location: \_\_\_\_\_ Date

reported to APi Risk Management: \_\_\_\_\_

Contract Work (**Provide Copy of Contract**)

Date of Original Installation \_\_\_\_\_

Builders Risk Policy Provided? YES \_\_\_\_\_ NO \_\_\_\_\_

Service Work (**Provide Copy of Service Agreement/Inspection Report/Service Work Order, Etc**)

Service Agreement in Force? YES \_\_\_\_\_ NO \_\_\_\_\_

Limited Liability Language Included & Signed by Customer? YES \_\_\_\_\_ NO \_\_\_\_\_

Owner: \_\_\_\_\_ Owner contact/phone: \_\_\_\_\_

General Contractor: \_\_\_\_\_ Contact/phone: \_\_\_\_\_

Employee name: \_\_\_\_\_ Phone: \_\_\_\_\_

Supervisor's name: \_\_\_\_\_ Phone: \_\_\_\_\_

Project manager's name: \_\_\_\_\_ Phone: \_\_\_\_\_

Scope of work being performed when loss occurred: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

Description of Incident: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Damages: (Please itemize.) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Possible defective equipment/part: (Please include description, mfg, distributor, etc): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Owned / Leased / Rented / Borrowed equipment involved – please define: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Authority contacted and case number: \_\_\_\_\_

Other contractors or other parties whose work or activities may have been a cause or contributing cause of the loss – please explain their involvement: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Other “Company” employees who may have witnessed or have information relative to loss:

NAME	PHONE

Other Witnesses:

NAME	COMPANY	PHONE

**Injuries** – Name, phone and address of injured, and if an employee of others, name of employer:

NAME	COMPANY/ADDRESS	PHONE

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



**Appendix F**  
**Page 2**

**OTHER DRIVER & OWNER INFORMATION**

Driver Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Home Phone Number \_\_\_\_\_  
Work/Cell Phone Number \_\_\_\_\_ Driver's License Number \_\_\_\_\_ State \_\_\_\_  
Birth Date \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_

Owner Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Home Phone Number \_\_\_\_\_

Passenger Name \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_  
Passenger Name \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_

**OTHER VEHICLE INFORMATION**

Insurance Company \_\_\_\_\_ Phone Number \_\_\_\_\_  
Policy Number \_\_\_\_\_

Year \_\_\_\_\_ Make \_\_\_\_\_ Model \_\_\_\_\_ VIN \_\_\_\_\_  
License Plate \_\_\_\_\_ State \_\_\_\_\_ Color \_\_\_\_\_ Drivable?  Yes  No

**WITNESS INFORMATION**

Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_

**PROPERTY DAMAGE OTHER THAN VEHICLES**

Owner Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_  
What was damaged \_\_\_\_\_

Location of Property \_\_\_\_\_  
\_\_\_\_\_

**Appendix G**  
**Authorization for Release of Medical Records**

To (Name of Provider): \_\_\_\_\_

Patient: \_\_\_\_\_ SSN: \_\_\_\_\_ DOB: \_\_\_\_\_

*The purpose of this authorization of release of medical information is to gather pertinent medical documents to support the workers' compensation process and to assess and employee's medical or vocational status and/or the development of alternative/modified work as applicable.*

I, \_\_\_\_\_ do hereby authorize any and all medical providers who have examined, treated or otherwise taken part in my medical care for an injury/illness date of \_\_\_\_\_ to my employer, \_\_\_\_\_, their insurance carrier, agent, or other representative, a copy of any/all pertinent medical information that may include:

- |   |   |
|---|---|
| <input type="checkbox"/> Discharge Summary                            | <input type="checkbox"/> Laboratory Reports   |
| <input type="checkbox"/> History & Physical                           | <input type="checkbox"/> Radiology, Films, Photographs, Videos, Digitals, or other Images |
| <input type="checkbox"/> Consultation Report                          | <input type="checkbox"/> Radiology Reports  |
| <input type="checkbox"/> Operative Report/Pathology Report            | <input type="checkbox"/> Pharmacy Records   |
| <input type="checkbox"/> Emergency Services Report                    | <input type="checkbox"/> Dental Records   |
| <input type="checkbox"/> Transcribed Hospital/Clinic Notes or Reports |   |
| <input type="checkbox"/> Other (specify): _____                       |   |

I understand this authorization may be revoked by me, in writing, at any time, but would not apply to any information already released in good faith. I understand that any disclosure of information carries with it the potential for unauthorized re-disclosure at which time the information may not be protected by federal privacy rules. I understand that once information is released as specified in this authorization, the facility, their employees and my physician(s) cannot prevent the re-disclosure of that information. I hereby release each of them from any and all liability arising directly or indirectly from disclosure authorized by this consent and any re-disclosure of that information. I understand authorizing disclosure of my medical information is voluntary. I can refuse to sign this authorization and still be assured treatment. I understand that I may inspect or copy the information to be used or disclosed.

A photocopy/fax of this authorization will be treated the same as an original. This authorization will remain in place for one year.

\_\_\_\_\_  
*Signature of Patient or Legal Guardian*

\_\_\_\_\_  
*Date signed*

\_\_\_\_\_  
*If not signed by Patient, identify relationship to patient*

# Return to Work Policy

## Section 3.6

### **Purpose**

The Company is a strong advocate of aiding those employees who have been injured at work and restricted in work capacity. Hence, the Company has developed the following Return-to-Work Program to assist those employees by accommodating transitional or modified work duties whenever feasible. The ultimate goal of this program is to keep the injured employee progressively working towards unrestricted work or pre-injury condition.

### **Responsibilities**

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors with the Return-to-Work Process. This individual shall assure that applicable medical providers and have been informed of the company's Return-to-Work Program and provide details of transitional or modified duties for injured employees under their care. The Safety Manager shall communicate applicable return-to-work issues to the APi Risk Management Department.

#### *APi Risk Management Department*

Shall assist Safety Managers and Supervisors with all aspects of the Return-to-Work Program and provide technical assistance and management of the Workers' Compensation process.

#### *Employee*

Shall be responsible for informing their Supervisor of any workplace or off-work injury that restricts their ability to safely execute all of the duties they are expected to perform. Employees shall also be responsible for informing their medical provider of the

Company's Return-to-Work Program. Injured employees are expected to and will be held accountable to work within a medical provider's restrictions. Employees shall follow all of the treatment parameters issued by medical providers through transitional duties back to unrestricted work and / or pre-injury condition.

### **Pre-Planning**

The key to this program is assuring medical providers, as well as employees, our fully aware of the aggressive approach the Company takes with returning injured employees to the work environment. Prior to the beginning of a project, the Supervisor or Safety Manager shall identify the local medical provider that will be utilized to treat injured workers. Once identified, these individuals shall communicate the Company's Return-to-Work Program and our abilities to accommodate transitional or modified work duties for injured employees. Company fixed facilities shall periodically meet or discuss this Return-to-Work Program with the preferred medical provider in their area to review its implementation and effectiveness.

### **Procedure**

This policy is dependent upon timely notification of a workplace injury by our employees. Upon notification of a workplace injury, the following procedural steps shall be taken:

1. The Supervisor or Safety Manager shall arrange for employee medical attention as applicable.
2. If off-site medical attention is required, either the Supervisor, or their designee, shall accompany the injured employee to the medical provider.
3. After examination by a medical provider, the Supervisor, or their designee, shall request a copy of the Report of Work Ability. If the provider does not possess such form, the Supervisor shall provide a copy of the Company's Report of Work Ability in Section 3.5 of this manual.

# Return to Work Policy

## Section 3.6

4. If the employee is not released to unrestricted work, the Supervisor shall inform the medical provider of the Company's desire and ability to accommodate modified or transitional work duties.
5. If the employee will not be released back to work, the Supervisor shall inquire how long the employee will be off work, the basis for not releasing the employee to modified or transitional work duties, the treatment plan going forward, and the anticipated date where the employee could be released to modified or transitional work duties.
6. Upon treatment of the injured employee, the Supervisor shall initiate contact with the applicable Safety Manager to review any and all work restrictions and return-to-work alternatives.
7. In the case of employees with restricted duties, the Supervisor or Safety Manager shall review with the employee the details of a modified or transitional position that already exists or will be created to accommodate the employee's restrictions.
8. The Supervisor or Safety Manager shall periodically monitor the employee's work to verify that the employee is performing their tasks in accordance with the restrictions that were identified by the medical provider.
9. The Supervisor or Safety Manager shall assist in coordinating all on-going treatment of injured employees such as, physical therapy, work-hardening, follow-up appointments, etc. Where feasible, follow-up appointments should be scheduled at the beginning or end of an employee's scheduled workday.
10. At such time when an employee is released to unrestricted work, the medical provider shall provide the Company with a Report of Work Ability stating the employee has been released from their care and restored to the pre-injury condition.
11. In cases where an employee has been removed from the work environment, the Supervisor and / or Safety Manager shall establish frequent communication with the employee to discuss the injured employee's status and the desire to return the employee to work.
12. The Supervisor and Safety Manager shall forward all applicable injured employee paperwork and documentation to the APi Risk Management Department in a timely fashion.

### **Modified or Transitional Job Duty Job Offers**

It is desirable, whenever possible, to provide injured employees with a modified or transitional job offer in writing. This document should include the essential functions and expectations of the modified or transitional job duties.

In some cases, an employee may refuse to perform a modified or transitional work detail. In these instances, the Company shall prepare a written job offer outlining the modified or transitional job duties that were offered to the employee and the date of occurrence. If the employee fails to report for work within (3) working days, the Supervisor or Safety Manager shall send the employee the original transitional or modified job offer along with a separation form stating the employee refused the offer via certified mail. The only exception to this requirement is in locations where State Statutes specify the length of time an employee has to report to work in a transitional or modified work capacity.

The Supervisor or Safety Manager shall solicit the assistance from the APi Risk Management Department in the creation and issuance of all modified or transitional job offers to employees. Copies of such job offers shall be maintained at the project or branch office with a copy forwarded to APi Risk Management.

# Return to Work Policy

## Section 3.6

### Training

All Managers and Supervisors shall receive initial instruction on the contents of this Return-to-Work Program upon hire and periodically thereafter. Managers and Supervisors are responsible for assuring all employees understand the provisions of this program.

# Emergency Action Plan

## Section 3.7

### Purpose

To establish and implement requirements associated with the safe evacuation of all employees from the work environment during an emergency.

### References

OSHA 1926.35, 1910.38

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to reporting emergencies, responding to emergency notifications, and evacuating to their required designated location.

### Owner Requirements

An owner, client, or general contractor may require the Company to follow the provisions of a site specific Emergency Action Plan as a contractual requirement or site condition. In such instances, we shall follow the provisions of such plan incorporating these minimum requirements.

### Escape Procedures

Escape procedures will be the same for all company locations. First and foremost, it's your responsibility to get all the available fire escape information about the location you are in. Take

note of the nearest exit near you, and make sure it is unobstructed and unlocked. Make sure that there is sufficient fire protection, as automated sprinklers and or fire extinguishers. If you have guests, vendors, equipment suppliers, technicians, maintenance personal, or any other persons inform them about the escape plan, and ensure they know the appropriate escape routes from every room while they are visiting.

Physically challenged employees will be assigned an employee to assist them in the evacuation of the building. Managers are responsible for assigning an employee to provide assistance in the event of an emergency.

At the first sign of danger, calmly stop what you are doing, evacuate the area in a calm and orderly fashion using the designated escape route, and proceed to your pre-determined meeting area.

### Critical Plant Operations

Critical Plant Operations are considered an operation that will add dangerous elements to an emergency or will cause additional damage to the plant after an emergency has been contained and controlled or has passed.

Management will work with the Fire Department to delegate the shut down of any Critical Plant Operations.

### Employee Accountability

Management will take a local count at their designated meeting area to determine if any persons are missing from. The employee count will be used as an accountability check, incase of an emergency.

### Rescue and Medical

#### *Fire Department*

In the event of an emergency, follow site-specific emergency procedures. If the situation is life threatening, call 911 first, then contact your supervisor or manager to alert them to the situation and take the proper evacuation

# Emergency Action Plan

## Section 3.7

actions as laid out in the Emergency Action Plan. Remember that no fire is too small to call the Fire Department.

### *Hazardous Materials*

Upon learning about the hazardous material spill, follow site-specific procedures. If there is not a site-specific procedure, dial 911 for immediate assistance. The Fire Department will assess the severity of the situation and help determine if more assistance is needed.

### **Contact to Explain Duties**

In the event that a person or persons needs further information, an explanation of their duties under the Emergency Action Plan or the need for general help, the Safety Manager can be contacted or refer to *Appendix A*, entitled Emergency Contact Information.

### **Notification System**

The employee notification system provides warning for necessary emergency action and proper reaction time for safe escape of employees from workplace or the immediate work area.

The employee notification system shall be at a high enough decibel level to be perceived above any ambient noise.

In the case of a Fire, Explosion, or Chemical Spill, the sounded notification will be distinctive and recognizable as a signal to employees to evacuate the building in the manner laid out in the Emergency Action Plan.

In the case of a Tornado or Severe Weather, after the distinctive and recognizable notification, the weather severity will be announced so the employees will be able to take the proper actions as laid out in the Emergency Action Plan.

### **Evacuation**

In the case of a Fire, Explosion, or Chemical Spill, the escape procedures listed in the Emergency Action Plan shall be followed to

evacuate all employees and have them retreat to their designated meeting area.

In the case of a Tornado or Severe Weather, the escape procedures listed in the Emergency Action Plan shall be followed to ensure proper sheltering for all employees. Following set escape routes, employees shall meet in their designated shelter location.

### **Training**

The Emergency Action Plan shall be reviewed with each employee covered by the plan at the following times:

1. Initially when the Emergency Action Plan is developed,
2. When a person is hired after the implementation date of the Emergency Action Plan,
3. Whenever the employee's responsibilities or designated actions under the Emergency Action Plan change, and
4. Whenever the Emergency Action Plan is changed.
5. Annually or when site conditions change.

### **Appendices**

Appendix A – Emergency Contact Information

## Appendix A Emergency Contact Information

Contact List	Phone Number	Cell Number
--------------	--------------	-------------

Public Service	Emergency	Non-Emergency
----------------	-----------	---------------

Fire Department	or	
Police Department	or	
County Sheriff	or	

<b>Hospitals/Clinics</b>
--------------------------

Center  
Hospital  
Clinic

Ambulance/Medical Transport	Emergency	Non-Emergency
-----------------------------	-----------	---------------

Rescue/Ambulance Services		
Damarco (MSDS Distributor)		(877) 451-6919

<b>After Hours Contact List</b>
---------------------------------

Zurich		(800) 989-3373
APi Risk Management		(651) 269-4703

# OSHA Inspections, Citations, and Penalties

## Section 3.8

### Purpose

The Occupational Safety and Health Administration (OSHA) is a federal agency created within the Department of Labor to develop, promulgate, and enforce mandatory job safety and health standards. Our Company Health and Safety Program has been developed to meet and or exceed the standards established by OSHA. The purpose of this section is to identify Company protocols with respect to OSHA Inspections and how to effectively manage those instances where OSHA presents and requests to inspect our projects.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for assuring that job Superintendents, or there designee, are fully aware of the provisions of this policy and are fully cognizant of their role and responsibility in an OSHA compliance inspection.

#### *Safety Manager*

Shall participate in OSHA compliance inspections whenever feasible and assist with all aspects of OSHA inspections, abatement, citations, and proposed penalties.

#### *Superintendent*

In most instances, the Superintendent will be the highest ranking Company representative on a project. This individual shall be professional and respectful of OSHA Compliance Officers and honor legitimate requests, take applicable corrective action/s, allow employees to be interviewed as requested, document all applicable aspects of the inspection, and notify the applicable Safety Manager or APi Group Corporate Safety Director of OSHA's presence and purpose for the inspection.

### OSHA Inspection Protocol

OSHA Inspections may be conducted by Federal or State OSHA Inspectors unique to the State in which we are performing work.

These inspections can be conducted without advance notice to the Company. The following policy and procedural information shall be used as a guide to aid Superintendents, Safety Managers, or their designees in satisfactorily managing an OSHA Inspection. **It is not company policy to require a warrant to inspect our work, however, we due to have to yield consideration to Owner's policies for permitting OSHA on a given project site.** We shall be courteous and cooperative with OSHA Compliance Officers, at the same time; we shall also protect our legal rights under the Occupational Safety and Health Act. It is important to note that OSHA inspections must be conducted during regular work hours and without unreasonable disruption of the work.

OSHA Compliance Officers are required to make their presence known upon arrival to the project site or office location prior to any inspection taking place. At the projects in which we work, this usually takes place at the main entrance to an Owner's facility or at a receiving area. OSHA will typically identify the type of inspection to be performed at this time, which may consist of:

1. A planned or programmed health and safety inspection.
2. Response to a complaint.
3. Re-inspection to confirm abatement of a prior citation.
4. Response to notification of a workplace fatality or in-patient hospitalization of 3 or more employees.

If the inspection involves re-inspection or complaint involving only another employer we shall not be involved with inspection proceedings. If the inspection is a general health and safety inspection or general emphasis inspection, our Company should be immediately notified of the Compliance Officer's arrival on site. The Company employee first notified of OSHA's arrival to the site shall immediately notify the job Superintendent. The Superintendent, or their qualified designee, shall then participate in all aspects of the inspection, including

# OSHA Inspections, Citations, and Penalties

## Section 3.8

participation in meetings and walkthrough of the job-site. Multi-employer job-sites will require the coordination of all inspection activities for all employer representatives. The Superintendent, or their qualified designee, upon notification of a Compliance Officer's arrival to the job-site shall:

1. Notify the applicable Manager, Safety Manager or Corporate Safety Director that an OSHA inspection is to be conducted and advise the purpose of that inspection.
2. Verify the OSHA Compliance Officer's credentials.
3. Document detailed notes of the conferences (opening and closing) and inspection. Include the OSHA Compliance Officer's name and identification number, date of the inspection, time of his / her arrival to the site, start and finish of the walkthrough inspection, purpose of the inspection, conference topics and names of all personnel present, names of all personnel interviewed, areas inspected, operations observed, records requested, photos taken, inspector's comments, and potential citations. Documentation of all inspection information is to be completed on the OSHA Inspection Report, shown as *Appendix A* of this section.
4. For general inspections, the Owner's representative or General Contractor typically manages or coordinates OSHA's Opening and Closing Conferences as well as the worksite inspection. The Superintendent, or their designee, shall protect the Company's interests while leading the inspection through our work areas. The OSHA Compliance Officer is to be granted access when the request is made to inspect our work areas. However, the Compliance Officer shall be instructed on any special Company or Owner safety requirements and is expected to adhere to those safety requirements in effect.
5. If the inspection is to confirm abatement of previous citations issued at that job site, those citations are the only valid topics for the conferences and or inspection. In

addition, you are only required to grant the Compliance Officer access to the immediate work area in which the initial citation was issued.

6. If the inspection is due to a complaint, obtain a copy of the complaint for review. Only the specific subject matter of the complaint is to be discussed and inspected. If a Compliance Officer observes another hazard while in route to inspect the subject of a complaint or re-inspection, however, that hazard becomes subject to inspection.

### OSHA Inspection Proceedings

At the Opening Conference, the OSHA Compliance Officer should communicate the basis of their inspection to the meeting attendees. The Compliance Officer will typically ask that certain project information be made available such as: OSHA 300 Logs, types of crafts employed at the site, number of employees, and a description of the work being performed. They may also ask employers to provide a copy of their written Health and Safety Manuals and or applicable employee training records. Job-site supervision shall consult with the applicable Safety Manager or Corporate Safety Director before providing such documents to the OSHA Compliance Officer.

During the course of the inspection, the Compliance Officer may request confidential employee interviews with our employees. This request shall be honored. The Job-Site Supervisor or applicable Safety Manager shall document the names of employees interviewed during this process on the OSHA Inspection Report. The Compliance Officer may also ask specific questions about the work. Be specific when answering Compliance Officer's questions and focus on answering only what was asked. In addition, keep all answers to Compliance Officer's questions factual and do not make assumptions or divulge inaccurate information. If necessary, you may also ask the Compliance Officer for a reasonable time to gather more information on the request if you are uncertain.

# OSHA Inspections, Citations, and Penalties

## Section 3.8

OSHA Compliance Officers will take photographs of items they feel are deficient or may be the basis of a violation. The Job-Site Supervisor or Safety Manager shall take duplicate photographs of all company-related alleged deficiencies documented by the Compliance Officer. These photographs shall supplement the OSHA Inspection Report and be forwarded to the APi Group Corporate Safety Director as part of the entire inspection file once the report is completed. The Compliance Officer will often point out job-site safety deficiencies. The Job-Site Supervisor shall implement immediate corrective action as applicable when such deficiencies are brought to their attention. Documentation of these deficiencies and corrective action shall be documented as part of the inspection file.

After the inspection is completed, the Compliance Officer should conduct a Closing Conference. All applicable parties should be afforded the opportunity to participate in this meeting. The Compliance Officer will communicate his / her findings and may divulge those issues that may be subject to OSHA Citations. OSHA is not required to discuss the penalties that will accompany those alleged violations. They may also request additional information be released to them at this time. Once this meeting is complete and the Compliance Officer has left the premises, the Job-Site Supervisor or Safety Manager shall make timely notification to the appropriate Manger and Corporate Safety Director and communicate the outcome of the inspection.

### Issuance of OSHA Citations

When citations are issued, OSHA will notify the offending employer of such citation via registered mail. OSHA will list the proposed citations, fines, and abatement dates in this document. Once received, the employer has fifteen days to contest the merits of the citation, if so chosen. It is imperative the Company receiving such notice notify the applicable Safety Manager and APi Group Corporate Safety Director of such citation to afford a reasonable amount of time to determine contesting the citation and the corresponding plan of action. If a decision is made to contest

the citations, it is extremely important that the rules for contesting a citation set forth by the governing body of the state the citation is issued are followed. If the state is governed by Federal OSHA the requirement is to write a Letter of Contest to the area OSHA director. However, if the citation is issued in one of the twenty six states with approved State OSH Programs it is important to know that the procedures could be different (see Appendix B for a sample). Contact information for each of the twenty six states is listed in Appendix C. If it is determined the citations will not be contested or no action is taken, the fines, citations, and periods for abatement become binding and abatement dates must be met or fines increase. When applicable, all Letters of Contest or other correspondence to OSHA shall be performed by the applicable Safety Manager.

### Document Management

All OSHA Inspection, Citation, proposed penalties, correspondence, and all other related documentation shall be kept on file with the applicable company as well as copies of the above-mentioned information forwarded and maintained by the APi Group Corporate Safety Manager.

### Appendices

Appendix A – OSHA Inspection Report

Appendix B – Sample Citation Contestation Form

Appendix C – OSHA Citation Contestation Contact Information

**Appendix A**  
**OSHA Inspection Report**

Job Number: \_\_\_\_\_ Job Name: \_\_\_\_\_

Site Location: \_\_\_\_\_

Compliance Officer's Name: \_\_\_\_\_ Badge Number: \_\_\_\_\_  
(Provide Business Card)

What was the purpose of the visit as explained by the Compliance Officer?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was the visit due to an employee(s) complaint?  Yes  No

Were you provided a copy of the complaint?  Yes  No

Whom did the Compliance Officer initially contact at the job site?

\_\_\_\_\_  
(Name) (Position)

Did the Compliance Officer provide his / her credentials?  Yes  No

Did the Compliance Officer talk with workers / other personnel before showing their credentials?  Yes  No

Did the Compliance Officer take any pictures before he/ she arrived at the site and introduced himself / herself?  Yes  No

Were employees from other companies working at the jobsite, and did the Compliance Officer ask them to be present at the opening conference?  Yes  No

**Opening Conference**

List the names and employer of those individuals attending the Opening Conference

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OSHA Inspection Report  
Page 2**

Explain how employee representatives were selected to participate in the inspection, if applicable.

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**Inspection of the Work, Site, or Office Location**

Company Representative accompanying the Compliance Officer

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(Name) (Position)

Other Company Representatives participating in inspection

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Comments made by the Compliance Officer with respect to our work

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Did the Compliance Officer take Photographs of our work?  Yes  No

If yes, please attach photos with a description of the location photo graph was taken.

Did the Compliance Officer stop work at any area inspected?  Yes  No

If yes, explain the nature and duration of the work stoppage.

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**OSHA Inspection Report  
Page 3**

Did the Compliance Officer request to review the OSHA 300 Log?  Yes  No

Did the Compliance Officer request a copy of the written Health and Safety Manual?  Yes  No

Did the Compliance Officer conduct confidential employee interviews?  Yes  No  
(If yes, please list the employee's names)

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Name the other companies inspected.

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**Closing Conference**

Name the individual(s) and their employer present at the Closing Conference.

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Did the Compliance Officer allege that violation(s) occurred?  Yes  No  
during the inspection?

If yes, name them along with the responsible contractor or employer.

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**OSHA Inspection Report  
Page 4**

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Inspection Time Duration**

Time compliance officer arrived: \_\_\_\_\_  
Time opening conference began: \_\_\_\_\_  
Time opening conference ended: \_\_\_\_\_  
Time inspection began: \_\_\_\_\_  
Time inspection ended: \_\_\_\_\_  
Time closing conference began: \_\_\_\_\_  
Time closing conference ended: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

A copy of this report shall be forwarded to your Safety Manager and to the API Group Corporate Safety Director.

**Appendix B  
Sample Citation Contestation Form  
(State of Minnesota)**

**4. HOW TO CONTEST THE CITATION AND NOTIFICATION OF PENALTY**

The employer must indicate in the boxes below which part of the Citation and Notification of Penalty it wishes to contest. First the employer must identify the citations it is contesting by indicating the citation and item numbers. (For example, “**Citation 1, Item 2**”). Then the employer must indicate which parts of each item is being contested. Finally, the employer must state the reasons for contesting in the space provided below the boxes.

- Check the box CITATION, if the employer wishes to contest that the violation occurred.
- Check the box TYPE OF VIOLATION, if the employer wishes to contest the characterization of the violation as non-serious, serious, willful or repeat.
- Check the box ABATEMENT DATE, if the employer wishes to contest the date by which you must abate the violation.
- Check the box PENALTY, if the employer wishes to contest the amount on the penalty.

**FAILURE TO CHECK ANY PART WILL RESULT IN THAT PART OF THE VIOLATION BECOMING A FINAL ORDER OF THE COMMISSIONER WHICH IS NOT REVIEWABLE BY ANY COURT OR AGENCY.**

CITATION AND ITEM NUMBER	
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
REASONS FOR CONTEST: (Additional sheets may be attached as necessary, and are considered part of this form.)	

**\*It is important to remember that if you are unsure of what you need to contest or what boxes to check, please contact APi Group Risk Management or check all the boxes. Checking all the boxes will guarantee that you will be able to dispute all parts of the citation.**

**Appendix C**  
**OSHA Citation Contestation Contact Information**

**Federal OSHA**

US Department of Labor  
Occupational Safety and Health Administration  
2001 Constitution Ave.  
Washington, D.C. 20210  
PH: 800-321-6742

**Alaska Dept. of Labor and Workforce  
Enforcement**

3301 Eagle St., Suite 305  
Anchorage, Alaska 99503  
PH: 800-770-4940

**Industrial Commission of Arizona**

800 W. Washington  
Phoenix, Arizona 85007  
PH: 602-542-4411

**California Department of Industrial Relations**

Division of Occupational Safety and Health  
1515 Clay St., Suite 1901  
Oakland, CA 94612  
PH: 510-286-7000

**Connecticut**

\*Private sector is regulated by Federal OSHA.

**Hawaii Dept. of Labor and Industrial Relations**

Occupational Safety and Health Division  
830 Punchbowl St.  
Honolulu, Hawaii 96813  
PH: 808-586-8844

**Indiana Department of Labor**

State Office Building  
402 West Washington St., Room W195  
Indianapolis, IN 46204  
PH: 317-232-2378

**Iowa Bureau of Labor**

IOSH Consultation and Education  
1000 E. Grand Ave.  
Des Moines, IA 50319  
PH: 515-281-7629

**Kentucky Department of Labor**

Office of Occupational Safety and Health  
1047 U.S. Hwy 127 South, Suite 4  
Frankfort, Kentucky 40601  
PH: 502-564-3070

**Maryland Department of Labor**

Occupational Safety and Health  
1100 North Eutaw St., Room 613  
Baltimore, Maryland 21201  
PH: 410-767-2190

**Michigan Occupational Safety & Health Admin**

P.O. Box 30643  
Lansing, Michigan 48909  
PH: 517-322-1814

**Minnesota Department of Labor and Industry**

443 Lafayette Road North  
St. Paul, Minnesota 55155  
PH: 651-284-5310

**Nevada Division of Industrial Relations**

Occupational Safety & Health Enforcement Sec  
1301 North Green Valley Parkway, Suite 200  
Henderson, Nevada 89074  
PH: 775-687-5240

**New Jersey**

\*Private sector is regulated by Federal OSHA.

**New Mexico Environment Department**

Occupational Health and Safety Bureau  
525 Camino de los Marquez, Suite 3  
Santa Fe, New Mexico 87505  
PH: 505-476-8700

**New York**

\*Private sector is regulated by Federal OSHA.

**North Carolina Department of Labor**

4 West Edenton St.  
Raleigh, North Carolina 27601  
PH: 919-807-2900

**Oregon Occupational Safety & Health Division**

Dept. of Consumer & Business Services  
350 Winter Street NE, Room 430  
Salem, Oregon 97301  
PH: 503-378-3272

**Puerto Rico Safety and Health Administration**

Department of Labor, 20<sup>th</sup> Floor  
505 Munoz Rivera Ave  
Hato Rey, Puerto Rico 00918  
PH: 787-756-1100

**South Carolina Department of Labor**

Office of OSHA Compliance  
Koger Office Park, Kingstree Building  
110 Centerview Drive  
P.O. Box 11329  
Columbia, South Carolina 29210  
PH: 803-896-7665

**Tennessee Dept. of Labor & Workforce Dev.**

710 James Robertson Parkway  
Nashville, Tennessee 37243  
PH: 615-741-2793

**Appendix C**  
**OSHA Citation Contestation Contact Information**

**State of Utah Labor Commission**

Occupational Safety and Health Division  
160 East 300 South  
P.O. Box 146650  
Salt Lake City, Utah 84114  
PH: 801-530-6848

**Vermont Occupational Safety & Health Admin**

National Life Building – Drawer 20  
National Life Drive  
Montpelier, Vermont 05620  
PH: 802-828-2765

**Virgin Islands**

\*Private sector is regulated by Federal OSHA.

**Virginia Department of Labor & Industry**

Occupational Safety and Health  
Powers-Taylor Building  
13 South 13<sup>th</sup> Street  
Richmond, Virginia 23219  
PH: 804-786-2391

**Washington Department of Labor & Industries**

Division of Occupational Safety and Health  
PO Box 44001  
Olympia, Washington 98504  
PH: 360-902-4200

**Wyoming Department of Employment**

Worker's Safety and Compensation Division  
Cheyenne Business Center  
1510 East Pershing Boulevard  
Cheyenne, Wyoming 82002  
PH: 307-777-7700

# Pre-Bid / Pre-Job Risk Assessment

## Section 3.9

### Purpose

When appropriate, or upon request, the Company shall endeavor to perform a Pre-Bid / Pre-Job Risk Assessment to identify potential risks and develop a plan to effectively manage these risks to provide additional safeguards for our employees, co-workers, the employees of others, and in an effort to prevent loss to property and or equipment.

### Responsibilities

In order for this program to be effective, Managers must enlist or otherwise solicit Company Project Mangers and or Safety Professionals to perform the Risk Assessment outlined in this policy. By doing so, safety and loss control information can be conveyed to applicable Managers for consideration in bid proposals, project scheduling and coordination, and pre-construction contract discussions with our clients. The assessment process serves as a tool in the identification of safety and loss control issues that will drive implementation of the various company safety and health programs. Successful implementation of this program will be achieved by identifying the following responsibilities:

#### *Managers / Supervisors*

Shall be responsible for requesting this assessment to be performed when a new project has been awarded or there are concerns about site conditions at the bid phase of the project warranting such assessment. Once this assessment is completed and reviewed, all recommendations in the assessment shall be given consideration and utilized as a method to safely and productively conduct all tasks associated with the work and or project.

#### *Project Manager / Safety Managers / Estimators*

Shall perform the Risk Assessment and document their findings on the Pre-Bid / Pre-Job Risk Assessment, listed as *Appendix A* of this section. Once completed, this individual is to forward their findings to the appropriate Manager for consideration and implementation.

In addition, this individual shall place a copy of this Risk Assessment into the appropriate Project File established for the project with a copy maintained by the Company's Safety Manager.

### Risk Assessment

The Risk Assessment Process has been developed to aid Project Managers, Safety Professionals, Estimators, and other key Company personnel in a cooperative effort to effectively identify foreseeable safety and loss control issues that may have been unintentionally overlooked or have the ability to present unnecessary risks or unwanted losses.

The intent of this assessment is to afford the opportunity to detect hazards early on in the project stages. This will aid in the following:

1. Identifying additional or alternative safeguards for employee and asset protection.
2. Allocating costs associated with additional or previously unknown risks,
3. Providing additional time to procure and or design additional safeguards or implement alternative solutions for the risk presented.
4. The opportunity to identify applicable issues with an Owner, General Contractor, or Subcontractor early on in a project in an effort to avoid unnecessary delays.

### Appendices

Appendix A – Pre-Bid / Pre-Job Risk Assessment

**Appendix A**  
**Pre-Bid / Pre-Job Risk Assessment**

**Project Information**

Date: \_\_\_\_\_ Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_

Project Estimated Value / Cost: \_\_\_\_\_ Type of Contract: \_\_\_\_\_

Location (State and City): \_\_\_\_\_

Estimated Duration of Project: \_\_\_\_\_ Estimated Completion: \_\_\_\_\_

Client or Owner: \_\_\_\_\_ Type of Project: \_\_\_\_\_

Anticipated Weather Conditions: \_\_\_\_\_

Insurance to be provided by Company or others (OCIP, CCIP): \_\_\_\_\_

If an OCIP or CCIP is used, is there a deductible associated with the Program? Yes \_\_\_ No \_\_\_

Does the Project have a signatory Project Agreement with a collective bargaining unit? Yes \_\_\_ No \_\_\_

**Project and Task Specific Information**

Crane / Boom Activities

Will the project require the use of crane(s)? Yes \_\_\_ No \_\_\_  
(If no, skip additional crane questions).

Identify the anticipated loads of materials that will be lifted: \_\_\_\_\_

Will any load be in excess of 80% of the crane's rated load capacity? Yes \_\_\_ No \_\_\_

Estimate the value of equipment that will be lifted: \_\_\_\_\_

Will equipment manufacturers provide load weights of equipment? Yes \_\_\_ No \_\_\_

Has the equipment manufacturer identified specific pick points? Yes \_\_\_ No \_\_\_

If no, list the alternative method that will be utilized to gather this information: \_\_\_\_\_

If yes, how will that information be communicated? \_\_\_\_\_

Will the equipment be lifted over equipment or existing operations? Yes \_\_\_ No \_\_\_

What is the estimated value of equipment or business interruption? \_\_\_\_\_

Is a critical pick worksheet required for any of the anticipated lifts? Yes \_\_\_ No \_\_\_

Is a man basket going to be utilized in tandem with the crane for the work? Yes \_\_\_ No \_\_\_

Is the crane required to be equipped with an anti-two blocking device? Yes \_\_\_ No \_\_\_

Does the Company / Owner require the use of a Certified Crane Operator? Yes \_\_\_ No \_\_\_

Shall pre-lift meetings be conducted prior to lifting activities? Yes \_\_\_ No \_\_\_

Is radio communication going to be utilized for the lift? Yes \_\_\_ No \_\_\_

Is the use of separate radio frequency required or otherwise necessary? Yes \_\_\_ No \_\_\_

\*(Lifting operations shall be stopped whenever wind conditions exceed 20 m.p.h.)

**Pre-Bid / Pre-Job Risk Assessment  
Page 2**

Excavation Activities

Will the project require an excavation(s)? Yes \_\_\_ No \_\_\_

(If no, skip additional excavation questions).

List the anticipated depth of the excavation(s)? \_\_\_\_\_

Is depth  $\geq$  20'? Yes \_\_\_ No \_\_\_ (List the name of the engineering company that will design the shoring / sloping / benching / trench box protection method): \_\_\_\_\_

Has the Owner / Client disclosed underground utilities in the form of drawings or other communication? Yes \_\_\_ No \_\_\_

Name the State Agency that requires notification prior to any excavation: \_\_\_\_\_

\_\_\_\_\_

List the known soil composition and correlating OSHA classification: \_\_\_\_\_

\_\_\_\_\_

Will the excavation require barrier protection at the grade elevation perimeter? Yes \_\_\_ No \_\_\_  
(Hand digging is required within 2' of centerline of any known utility)

Has the Owner or Utility Company identified the status of the utility? Yes \_\_\_ No \_\_\_

Will operating utilities be abandoned or decommissioned? Yes \_\_\_ No \_\_\_

If yes, Owner shall decommission or perform actual de-energization of existing utilities prior to turning them over to the company.

Electrical Considerations

Are overhead power lines present in any project area that will impact our work? Yes \_\_\_ No \_\_\_

Will the work require coming closer than 10' of the overhead power line? Yes \_\_\_ No \_\_\_

If yes, list the type of protection that will be implemented to avoid contact with such power source? \_\_\_\_\_

Are overhead power lines present where we will gain access to the site for mobilizing equipment, transporting materials, tools, etc.? Yes \_\_\_ No \_\_\_

If yes, what are the dimensions of the largest piece of equipment or materials we will bring through this access point? \_\_\_\_\_

(Factor in the dimensions of the transportation equipment to see if the total height will present an encroachment with respect to the electrical utility).

If an encroachment hazard is present, is there another access point on the site that can be utilized? Yes \_\_\_ No \_\_\_

If yes, list the location: \_\_\_\_\_

Will the work require the use of Lockout / Tagout procedures? Yes \_\_\_ No \_\_\_

List the name of the person who will communicate and coordinate Lockout / Tagout activities: \_\_\_\_\_

\_\_\_\_\_

Will the work require temporary electrical services? Yes \_\_\_ No \_\_\_

Are temporary electrical panels or permanent receptacles provided? Yes \_\_\_ No \_\_\_

If electrical service is provided, is it equipped with GFCI Protection? Yes \_\_\_ No \_\_\_

If electrical service is not available, list the name of the individual or company that will take on this responsibility? \_\_\_\_\_

Will the work require welding receptacles? Yes \_\_\_ No \_\_\_

Are welding receptacles provided? Yes \_\_\_ No \_\_\_

If no, who will be responsible to provide such service? \_\_\_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 3**

Fall Protection

Will the project expose our employees to fall hazards (ex. hole openings, wall openings, decks, platforms, or other work surfaces)? Yes \_\_\_ No \_\_\_

*(If no, skip additional fall protection questions).*

Is there a reasonable method to eliminate the fall hazard (engineering controls)? Yes \_\_\_ No \_\_\_

If yes, list the type of controls or protective systems that will be utilized: \_\_\_\_\_

\_\_\_\_\_

Will our employees be engaged in leading edge work? Yes \_\_\_ No \_\_\_

If yes, list the protection method that will be utilized: \_\_\_\_\_

\_\_\_\_\_

Will our employees be subjected to work activities that would place them underneath or in close proximity to overhead work? Yes \_\_\_ No \_\_\_

If yes, list the protection method that should be utilized to protect employees from falling tools, materials, and or equipment: \_\_\_\_\_

\_\_\_\_\_

Ladders

Will portable ladders be used to access work and / or execute work? Yes \_\_\_ No \_\_\_

Identify the type of ladder to be utilized? Portable \_\_\_ Fixed \_\_\_ Extension \_\_\_ Job Made \_\_\_

Will employee's anticipated working height expose them to electrical hazards?

If yes, what methods will be used to eliminate or mitigate such hazards? \_\_\_\_\_

Will employee's anticipated working height expose them to fall hazards? \_\_\_\_\_

Will any unusual conditions be present that could compromise safe ladder usage? Yes \_\_\_ No \_\_\_

Scaffolding

Will scaffolding be utilized to perform the work? Yes \_\_\_ No \_\_\_

*(If no, skip additional scaffolding questions).*

If yes, will we be responsible for erecting, inspecting, and maintaining the scaffolding?

Yes \_\_\_ No \_\_\_

If yes, what type of scaffolding will be used? Welded End Frame \_\_\_ Tube and Coupler \_\_\_

Systems Scaffolding \_\_\_ Shoring Scaffolding \_\_\_ Suspended Scaffolding \_\_\_

What is the anticipated working height of the scaffolding? \_\_\_\_\_

Does the Owner require the scaffold to be engineered? Yes \_\_\_ No \_\_\_

If yes, who will perform this service? \_\_\_\_\_

Will the scaffold be at height in excess of 125' above its base supports? Yes \_\_\_ No \_\_\_

How many working decks or platforms are required? \_\_\_\_\_

Will the work platforms be constructed of wood planks or manufacturer's decking? \_\_\_\_\_

What method of fall protection will be implemented at working decks? \_\_\_\_\_

What type of access ladder will be utilized to access the scaffold? Extension Ladder \_\_\_

Manufacturer's Ladder \_\_\_ Fixed Stair Tower \_\_\_

Will offset landing platforms or rest areas for access ladders be required? Yes \_\_\_ No \_\_\_

What is the maximum point load that will be subjected to the scaffold? \_\_\_\_\_

Is a permit system required for scaffold use? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment  
Page 4**

Aerial Lifts

Will the work require the use of aerial lifts? Yes \_\_\_ No \_\_\_  
List the type of aerial lift required: Scissor lift \_\_\_ Telescoping Boom (JLG) \_\_\_  
Articulating Snorkel Lift \_\_\_ Truck Mounted Lift \_\_\_  
What is the maximum working height the lift must reach? \_\_\_\_\_  
What are the ground conditions where the lift will be operated? \_\_\_\_\_

Is the area lift company-owned or provided by others? \_\_\_\_\_  
Will employee's anticipated working height expose them to other hazards (ex. electrical, structural, mechanical, overhead cranes, and atmospheric conditions)? Yes \_\_\_ No \_\_\_

Demolition / Material Removal / Other Hazardous Conditions

Will the project require demolition of existing facilities and or equipment? Yes \_\_\_ No \_\_\_  
*(If no, skip additional demolition questions)*

If yes, what type of structures and / or equipment will be slated for demolition? Process Piping \_\_\_  
Electrical \_\_\_ Structural \_\_\_ Concrete \_\_\_ Others \_\_\_\_\_

If the demolition is structural in nature, an engineering survey of the project will be required.

List the name of the engineering firm that will complete this task: \_\_\_\_\_

What type of structure will be demolished? Roofing \_\_\_ Structural Steel \_\_\_ Concrete \_\_\_  
Other \_\_\_\_\_

What year was the structure originally constructed? \_\_\_\_\_

Will the structure, equipment, or material require testing for the following materials prior to demolition? Asbestos \_\_\_ Lead \_\_\_ Mercury \_\_\_ PCB's \_\_\_ Mold \_\_\_ Other \_\_\_\_\_

List the structure, equipment, or material that will require such testing: \_\_\_\_\_

Who will be responsible to decommission or de-energize existing equipment? \_\_\_\_\_

How will de-energized equipment be communicated to our company? \_\_\_\_\_

If process piping is scheduled for demolition, list the known materials that flowed in such piping? \_\_\_\_\_

If multiple employers are working on the demolition collectively, how will coordination of demolition activities be communicated to our company? \_\_\_\_\_

Are we responsible to dispose of demolished materials and or debris? Yes \_\_\_ No \_\_\_

Will be responsible to provide the appropriate debris receptacle? Yes \_\_\_ No \_\_\_

Will any of the materials demolished be considered hazardous waste? Yes \_\_\_ No \_\_\_

If yes, list the name of the Transportation Company and applicable hazardous waste landfill that will be utilized? \_\_\_\_\_

**Pre-Bid / Pre-Job Risk Assessment  
Page 5**

Process Safety Management

Will the work be performed in an area covered by OSHA's Process Safety Management Standard? Yes \_\_\_ No \_\_\_

Has the client been provided a copy of "The Owner's Process Safety Hazard Disclosure" listed in Section 4.11 of this Health and Safety Manual? Yes \_\_\_ No \_\_\_

If no, who will be responsible to get such information? \_\_\_\_\_

Will the Owner be providing our employees with a Process Safety Management training orientation session? Yes \_\_\_ No \_\_\_

If yes, when is the training conducted? (Include location): \_\_\_\_\_

\_\_\_\_\_  
If no, who will be providing instruction on Process Safety Management Policies and Procedures?  
\_\_\_\_\_

How is access to the Process Safety Management Area(s) controlled? \_\_\_\_\_

Are there any special PPE requirements to work in this area? Yes \_\_\_ No \_\_\_

If yes, list the PPE that must be utilized to work in the area? \_\_\_\_\_

\_\_\_\_\_  
Will the work require our employees to utilize continuous air monitoring equipment? Yes \_\_\_ No \_\_\_

If yes, list the chemical or hazard that we will be monitoring: \_\_\_\_\_

\_\_\_\_\_  
List the name of the contact at the Owner's facility whom we shall contact with Process Safety Management issues? \_\_\_\_\_

Fire Protection System Installation and General Fire Protection Considerations

Will a fire protection system be installed? Yes \_\_\_ No \_\_\_

List the type of system to be installed: \_\_\_\_\_

Will the work be a new expansion of the existing system or new construction? \_\_\_\_\_

If the project is a new expansion, who will coordinate de-energization of the existing system so that work can progress? \_\_\_\_\_

Does the Owner have a specific policy or procedure with respect to de-energizing the existing system? Yes \_\_\_ No \_\_\_

If yes, describe how that procedure shall be communicated: \_\_\_\_\_

\_\_\_\_\_  
Describe the temperature extremes the fire protection system will be anticipated to withstand:  
\_\_\_\_\_

Is the system and its components designed to satisfactorily withstand these extremes? Yes \_\_\_ No \_\_\_

Will portable fire extinguishers be required for the work? Yes \_\_\_ No \_\_\_

List the type, size, and number required: \_\_\_\_\_

\_\_\_\_\_  
Will any of our work generate flame, spark, extreme heat, or other source of ignition? Yes \_\_\_ No \_\_\_

Will a hot work permit be necessary to conduct work activities? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 6**

Will fire blankets or other similar flame retardant materials be required to prevent flames or sparks from being transferred by adjacent ductwork, falling onto combustible materials, entering into potentially hazardous environments such as process sewers, or damaging equipment such as electrical insulation? Yes \_\_\_ No \_\_\_

List those materials, equipment, or areas requiring such protection: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Confined Spaces

Will the work require entering a confined space? Yes \_\_\_ No \_\_\_

Does the Owner have specific confined space entry procedures that must be followed? Yes \_\_\_ No \_\_\_

Does the Owner have placards identifying confined spaces and additional, specific hazard information? Yes \_\_\_ No \_\_\_

What are the potential hazards in the confined space that we shall monitor with air analyzing equipment? \_\_\_\_\_  
\_\_\_\_\_

Does the Owner require our company to utilize their Confined Space Entry Permit? \_\_\_\_\_

Will a method of retrieval be necessary? Yes \_\_\_ No \_\_\_

If yes, what type of retrieval system will be utilized? \_\_\_\_\_  
\_\_\_\_\_

Who will perform confined space rescue in the event of an emergency? \_\_\_\_\_  
\_\_\_\_\_

Chemicals

Does the work take place next to chemical storage or hazardous material areas? Yes \_\_\_ No \_\_\_  
(If no, skip additional chemical and hazardous material questions).

If yes, list the chemicals or hazardous materials: \_\_\_\_\_  
\_\_\_\_\_

List any special PPE requirements, policies, or procedures required for working around this area:  
\_\_\_\_\_  
\_\_\_\_\_

Does the Owner have any additional special safety requirements? Yes \_\_\_ No \_\_\_

General Safety Considerations

Will the Owner be providing trash or construction debris receptacles? Yes \_\_\_ No \_\_\_

If no, who will be responsible for procuring such waste management receptacles? \_\_\_\_\_  
\_\_\_\_\_

Who will provide toilets and sanitary services for the project? \_\_\_\_\_  
\_\_\_\_\_

How many employees are anticipated to be working on the project? \_\_\_\_\_

Who will be providing temporary lighting for the project? \_\_\_\_\_  
\_\_\_\_\_

Will we be required to provide temporary heating? Yes \_\_\_ No \_\_\_

Will job-site trailers be provided for the project? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 7**

If yes, who will be responsible for initial set-up and demobilization? \_\_\_\_\_

Who will provide applicable service utilities to the job-site trailer? \_\_\_\_\_

Will employees be provided a temporary location or mobile trailer for break time? Yes \_\_\_ No \_\_\_

Owner - Specific Requirements

Does the Owner require safety and loss control pre-qualification Information? Yes \_\_\_ No \_\_\_

List the information required to provide the Owner: \_\_\_\_\_

\_\_\_\_\_

Who will take on this responsibility? \_\_\_\_\_

Does the Owner require specific training of our employees (OSHA 10 Hour, Competent Person, etc?) Yes \_\_\_ No \_\_\_

Does the Owner require all employees to receive an Owner-specific site orientation? Yes \_\_\_ No \_\_\_

When and where does this training take place (Also include estimated time of training)? \_\_\_\_\_

\_\_\_\_\_

Does the Owner require our employee's to participate in an Owner-required Substance Abuse Program? Yes \_\_\_ No \_\_\_

Is the cost of such testing reimbursable? Yes \_\_\_ No \_\_\_

Identify the type of testing (pre-employment, post accident, random, for cause, suspicion, etc.), and the screening panel that will be utilized? \_\_\_\_\_

\_\_\_\_\_

Who will initiate contact with the APi Group Substance Abuse Program Administrator to communicate information regarding substance abuse testing? \_\_\_\_\_

List the name of the collection facility that will handle substance abuse program specimens: \_\_\_\_\_

Will the Owner be providing instruction to our employees on the specifics of designated program? Yes \_\_\_ No \_\_\_

Are employees required to be tested prior to arrival to the project? Yes \_\_\_ No \_\_\_

Does the Owner have specific PPE requirements? Yes \_\_\_ No \_\_\_

If yes, please list the requirements: \_\_\_\_\_

\_\_\_\_\_

Does the Owner require employer's to perform Job Safety Analysis (JSA's)? Yes \_\_\_ No \_\_\_

Will the Owner be providing the Company with applicable training or information (M.S.D.S.'s) for any hazardous materials that can potentially impact our employees? Yes \_\_\_ No \_\_\_

Does the Owner have specific permitting requirements? Yes \_\_\_ No \_\_\_

If yes, list such permits: \_\_\_\_\_



# Subcontractor Prequalification and Selection

## Section 3.10

### Purpose

The intent of this policy is to identify safety pre-qualification requirements that shall be followed selecting and awarding work to subcontractors. Where applicable, our customers may have more stringent prequalification requirements that shall be factored into the subcontractor selection process.

### Responsibilities

Selecting and awarding work to subcontractors is an integral aspect of our work. It is essential that we select only those subcontractors who have demonstrated a commitment to providing a safe workplace by setting subcontractor safety requirements and then evaluating their safety performance against that criteria. This process is to be completed initially before awarding a subcontract and annually thereafter dependant upon the duration of the work. Responsibilities for this process are as follows:

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall perform a review of all subcontractor safety prequalification documents and measure their performance to the Company's subcontractor safety requirements. The Safety Manager shall communicate any and all issues, concerns, or nonconformance to the applicable Manager.

#### *Subcontractor*

Required to submit all safety prequalification materials, in their entirety, to the Company (5) days before a subcontract is to be awarded. Subcontractors must submit, in writing, any and all exceptions to our requirements if they endeavor to continue with the bid process. Failure to do so can result in bid proposals being dismissed.

### Subcontractor Prequalification Requirements

#### *Insurance*

Prior to commencing any contracted work with the Company, the subcontractor shall procure, maintain, and pay for such insurance that will protect against any and all claims that may arise out of the operations by the subcontractor, their employees, or anyone whose actions may hold the subcontractor liable. This shall be verified by the subcontractor providing the Company with a Certificate of Insurance from the subcontractor's insurance carrier. The subcontractor shall provide insurance coverage to the Company as applicable.

These minimum insurance requirements are subject to change based upon scope of work and or unique risks presented by the type of work being performed. Managers concerned about either of these conditions shall contact the Company's Risk Management Department to evaluate the work being performed for further insurance evaluation.

#### *Safety Performance*

All subcontractors are required to complete and forward the Company's Prequalification Questionnaire, *Appendix A* of this Section, to the applicable Safety Manager for evaluation.

The following subcontractor pre-qualification requirements shall be used to determine subcontractor eligibility to perform work for the Company:

1. Subcontractors shall have an Experience Modification Rate (EMR) of < 1.0. The subcontractor's current EMR shall be forwarded to the Company on their insurance carrier's letterhead.
2. It is the goal of the Company to have subcontractors to safely perform their work with losses below the State and National Averages for OSHA Lost Workday and Total Recordable Cases. All subcontractors shall provide a (3) three year history for these categories, which will be compared to State

# Subcontractor Prequalification and Selection

## Section 3.10

and National Department of Labor and Industry Averages with respect to their Standard Industrial Classification (SIC) Codes.

3. Subcontractors shall not have been cited for a "Willful" or "Repeat" OSHA Violation within the past (3) years. Subcontractors possessing such violation/s shall be given an opportunity to explain relevant information pertaining to the violation. The Company shall carefully review such information and exercise discretion when considering job award.

### Pre- Bid and Pre-Award Meetings

To assure this policy's effectiveness, it is essential that subcontractor safety requirements and associated expectations regarding safety performance are communicated to all subcontractors bidding work for the Company. Where feasible, each Manager shall assure that the requirements outlined in this section are effectively communicated in a Pre-Bid Meeting to all applicable subcontractors prior to bidding on prospective Company Projects. Prior to bid award, the applicable Manager should conduct a Pre-Award Meeting with subcontractor/s to ensure that all parties understand the Company's safety goals and expectations for the project.

### Pre-Qualification Document Control

All subcontractor Pre-Qualification Documents shall be maintained in the appropriate project file and by the applicable Safety Manager. Subcontractors who meet the Company's pre-qualification requirements will be considered pre-qualified to work for the Company for the year in which the documents were completed. All subcontractors shall submit updated pre-qualification documents annually thereafter or more frequently dependant on owner requirements.

### Appendices

Appendix A – Pre-qualification Questionnaire



**Appendix A  
Page 2**

Are Supervisor's held accountable for site safety performance? Yes  No   
 If yes, please explain: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Are employees held accountable for violating safety rules? Yes  No   
 If yes, please explain: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Are "Near Miss Incidents" thoroughly investigated by your company? Yes  No   
 Are the results of those investigations communicated to your employees? Yes  No   
 Do you have an officer within your company who is responsible for the overall administration of the safety program? Yes  No   
 If so, what are his/her credentials? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**OSHA Citation History**

On company letterhead, please provide a detailed OSHA inspection history, including any citations issued to your company. If you were cited, please provide any corrective action taken by your company to correct non-compliance issues or percent re-occurrence of a similar situation.

**Insurance Verification**

Please submit a Certificate of Insurance from your insurance provider for the policy year in effect. The subcontract you will enter into with the Company will identify specific insurance coverage requirements. Your insurance coverage and limits must meet and/or exceed our requirements.

**Written Safety Program**

In addition to completion and submittal of the pre-qualification questionnaire, please submit the most current copy of your written safety program for review.

Below, you will find a breakdown of all 29 CFR Part 1926 OSHA Regulations for the Construction Industry. Next to each subpart, please check the appropriate response with consideration given as to whether it pertains to your work tasks.

		Applies	N/A	Written Program
<b>Subpart C</b>	General Safety and Health Provisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart D</b>	Occupational and Environmental Controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Process Safety Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Emergency Action Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart E</b>	Personal Protective and Lifesaving Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Respiratory Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Hearing Protection Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart F</b>	Fire Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart G</b>	Signs, Signals, and Barricades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart H</b>	Materials Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart I</b>	Tools – Hand and Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart J</b>	Welding and Cutting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart K</b>	Electrical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart L</b>	Scaffolding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart M</b>	Fall Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Appendix A  
Page 3**

		Applies	N/A	Written Program
<b>Subpart N</b>	Cranes and Derricks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart O</b>	Motor Vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart P</b>	Excavations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Q</b>	Concrete and Masonry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart R</b>	Steel Erection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart S</b>	Underground Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart T</b>	Demolition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart U</b>	Blasting/Explosives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart V</b>	Power Transmission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart W</b>	Rollover Protection Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart X</b>	Stairways and Ladders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Y</b>	Diving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Z</b>	Toxic and Hazardous Substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

I attest that the above-mentioned information is a true and accurate representation of our company's comprehensive safety program. I have honestly answered all questions and have supplied all requested items in their entirety.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

# Job Hazard Analysis (JHA)

## Section 3.11

### Purpose

The purpose of this section is to establish a process to identify, evaluate and control hazards found at the worksite.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall be responsible to provide training, resources, and technical assistance in support of this program.

#### *Employees*

Shall be responsible to review the information on the Job Hazard Analysis (JHA) and make adjustments / recommendations to improve accuracy and to follow the proper work practices outlined in the JHA.

### Job Hazard Analysis

A JHA is an exercise intended to identify and analyze specific tasks of a process to determine the potential hazards or areas of exposure and recommend controls to prevent their occurrence.

Work activities shall include but are not limited to:

1. Tasks that have involved, or have the potential for serious or frequent injury.
2. Tasks that have the potential of environmental impact.
3. Tasks that have involved, or have the potential for, major equipment damage.
4. Task not adequately covered by existing procedures.

### 5. Non-routine Tasks.

The JHA is best completed with a cross-section of employees including project management, superintendents, foreman and worker. This will ensure the proper attention to detail is given and expectations are communicated to all levels of participants.

After you have identified and detailed the basic job steps or tasks, the next phase of the process is to break down the operation / procedure into specific types of hazards that may be encountered while completing the task. Consider these factors when identifying potential hazards:

1. The physical actions required for each specific step.
2. The equipment required.
3. The material required.
4. The conditions under which the task is performed.

The type of Hazard could include injuries to employees or employees of others, general liability exposures from property damage, or quality control issues that effect performance of work installed. Specific accident factors include:

#### *Nature of injury*

Abrasions, lacerations, fractures, strain or sprain, foreign body, burns, etc.

#### *Body Part*

Head and neck, upper extremities, back and chest, lower extremities, etc.

#### *Type of Accident*

Overexertion, fall from same / different level, slips, struck by, inhalation, etc.

# Job Hazard Analysis (JHA)

## Section 3.11

### *Unsafe Act*

Improper body mechanics, failure to wear PPE, using defective equipment, poor house keeping, etc.

### *Hazardous Conditions*

Unguarded machinery, defective tools, improper illumination / ventilation, congested areas, etc.

The final step is to develop recommendations or solutions for eliminating or controlling each hazard. Required or recommended controls must adequately explain what corrective measures are to be carried out. Whenever possible engineering controls will be the preferred method but administrative controls are also accepted.

After the task has started and work is being performed, a review of the JHA's content should be performed to ensure it meets all aspects it was intended to cover. *Appendix A*, entitled Sample JHA, is included in this section as a reference.

### **Appendices**

Appendix A – Sample JHA

**Appendix A  
Job Hazard Analysis**

Project: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Work Task(s): Fire Sprinkler Installation

<b>Operation/Procedure</b>	<b>Potential Hazards/Injuries</b>	<b>Required/Recommended Controls</b>
Installing hangers (drilling, powder actuated, beam clamps) and hanging sprinkler pipe from aerial lift and ladder.	Working from elevation, use of power tools, dropped material, damaged material, employee injury.	Survey area before operating lift for unpoured portions of floor, uneven surfaces, floor openings, debris, etc. Secure material in basket or to lift. Ensure employee has proper lift operating credentials. Required PPE (Hard hat, safety glasses, work boots, fall protection). Use G.F.C.I at all times.
Threading, grooving, and cutting pipe (Ridgid 300 power machine). Make-on fittings.	Pinch points, manual material handling, lacerations, eye injuries.	Ensure proper training and use of equipment, tools, and material. Required PPE (Hard hat, safety glasses, work boots, etc.). Use only properly maintained tools and equipment. Use G.F.C.I at all times
Portable power tools (porta-band, drills, angle grinder, pumps, air compressors, powder actuated.	Pinch points, struck-by tool/flying debris, lacerations, eye injuries, abrasions.	Ensure proper training and use of equipment, tools, and material. Required PPE (Hard hat, safety glasses, work boots, etc.). Use only properly maintained tools and equipment. Use G.F.C.I at all times.
Installation of sprinkler heads. Application of thread sealant and tapping of heads.	Working from elevation, dropped material, material damage, eye injuries.	Ensure proper training and use of equipment, tools and material. Required PPE (Hard hat, safety glasses, work boots, etc.). Use wrench intended for sprinkler head.
Unloading material from boom truck, stake truck, service truck, and Nutting carts. Use of cranes, derricks, booms, Roust-abouts.	Dropped material, material damage, back strains, struck-by injuries, eye injuries.	Proper use of manual material handling equipment. Use correct lifting procedures to prevent back strain. Required PPE (Hard hat, safety glasses, work boots, etc.). Use only properly maintained tools and equipment.

## Safety Audits

### Section 3.12

#### Purpose

The Company has developed and implemented the following safety auditing program that shall be used to identify, analyze, eliminate and or reduce hazards in the workplace to create a safe environment for our employees and the employees of others.

#### Responsibilities

##### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

##### *Safety Managers*

Shall assist Managers / Supervisors by periodically auditing projects and manufacturing operations to assure the provisions of this Comprehensive Health and Safety Manual have been implemented and enforced, as applicable. Safety Managers shall communicate any deficiencies noted to the disciplines above-mentioned and recommend corrective action(s) and impose timelines for abating deficiencies.

##### *Employee*

Shall be responsible for inspecting their immediate work area and for following good housekeeping practices for the areas under their control. Employees shall notify their immediate supervisor of any and all hazards upon observation of such condition.

Employees shall also be responsible for correcting any and all workplace hazards as directed by the Company.

#### Safety Audits

The Job-Site Manager / Supervisor shall assure that employees conduct a daily visual inspection of the general work area, related tools, and equipment. The Manager / Supervisor, or their designee, shall perform a documented weekly inspection in addition to

daily inspections of the work area. This weekly inspection can be accomplished on the Daily Job-Site Inspection Report, listed as *Appendix A* of this section. The Comprehensive Safety Inspection, listed as *Appendix B* of this section, is a more thorough inspection that can be conducted periodically on job-sites or production facilities by the Job-Site Supervisor or applicable Safety Manager.

#### Audit Documentation

All audits shall be maintained at the job-site location or production facility with a separate copy to be forwarded to the applicable Safety Manager. It is imperative that all deficiencies identified through the audit process are corrected in a timely manner. The Job-Site Superintendent has the ultimate responsibility of achieving resolution to any deficiency identified in the audit process and documenting the correction and date such action was taken.

#### Appendices

Appendix A – Weekly Job-Site Inspection Report.

Appendix B – Comprehensive Safety Inspection.



## Appendix B Comprehensive Safety Audit

Job #: \_\_\_\_\_ Location: \_\_\_\_\_ Superintendent: \_\_\_\_\_

Inspector: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

	<u>Satisfactory</u>	<u>Needs Improvement</u>	<u>Comments</u>
<b>Section 2 – Responsibilities, Authorities &amp; Administrative Procedures</b>			
<b>Responsibilities – Job Superintendents</b>			
1. Coordinate safety with owner/client and others on jobsite	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Set proper example	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Review Company safety policy with all foremen and supervision	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Receive the jobsite safety packet, complete and post required information	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Provided jobsite employee safety training	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Plan safety meetings and conduct weekly tool box talks	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Conduct weekly site safety inspections	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Maintain forms, posters, accident reports, and safety training records	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Maintain and keep updated the MSDS binder and index	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Prepare and post emergency response and evacuation plan	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Report accidents to owner/client	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Responsibilities – Foreman</b>			
1. Continuously inspect work area and take corrective action	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Set a proper example for a high standard of safety	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Enforce safety rules	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Conduct safety training of employees and record tool box talks	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Be familiar with jobsite emergency procedures	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Responsibilities – Employees</b>			
1. Adhere to safety policy and performing work in a safe manner	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Using protective clothing and equipment required by jobsite	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Participating in tool box talks and safety meetings	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 3 – General Safety Provisions</b>			
<b>3.2 - OSHA Records</b>			
1. Corporate Safety Manual present and updated	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Handbooks and bulletins	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Safety meeting minutes	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Records of weekly tool box talks	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Safety training records	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Jobsite safety inspection records	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Injury reports	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. OSHA 300 Form posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>3.7 - Subcontractor Safety</b>			
1. Subcontractor questionnaire on file	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>3.11 - Emergencies</b>			
1. Emergency/Evacuation has been established and posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Employees/subcontractors know the evacuation route	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Employees/subcontractors know emergency numbers	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. All have been made aware of any special hazards in the workplace	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Training has been conducted on hire-in and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Appendix B  
Page 2**

	<u>Satisfactory</u>	<u>Needs Improvement</u>	<u>Comments</u>
<b>Section 4 – Occupational Health and Environmental Controls</b>			
<b>4.6 Hazard Communication</b>			
1. Proper training conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Proper labeling of containers	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Haz-Com file or binder with MSDS sheets and index	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Proper storage	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Proper use of personnel protective equipment	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>4.7 – Lead Safety</b>			
1. Workplace has been evaluated for possible lead exposure	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Training has been conducted and document, as necessary	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>4.11 - Housekeeping</b>			
1. Work areas and walkways clear	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Break areas clean	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Adequate containers provided/used	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Adequate lighting	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Welding leads and cords strung overhead	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>4.13 – Bloodborne Pathogens</b>			
1. First aid kit is equipped with a bloodborne pathogens kit	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Training has been conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Contact with any type of bodily fluid has been documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>4.14 - Confined Space Procedures</b>			
1. Are permits filled out and posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Are authorized entrant logs posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Are placards posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Have the proper tests been performed	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Proper equipment and personnel protective equipment used	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Proper training given and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 5 – Personal Protective Equipment</b>			
<b>5.1 – Personnel Protective Equipment</b>			
1. Hard hats worn at all times (Brim Forward)	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Safety glasses worn at all times	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Work gloves, when required	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Work shoes/boots adequate	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Adequate and proper clothing	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Hearing protection, when required	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>5.2 - Respiratory Protection</b>			
1. Proper atmospheric testing done	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Proper respirator supplied and used	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Medical examinations performed	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Training conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Fit testing conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Proper cleaning and storage	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 6 – Fire Protection</b>			
1. Adequately serviced fire extinguishers	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Hydrants, hoses, extinguishers unobstructed	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Fire evacuation plans given to personnel and posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Proper safety cans used	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Proper storage	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Appendix B  
Page 3**

	<u>Satisfactory</u>	<u>Needs Improvement</u>	<u>Comments</u>
<b>Section 8 – Rigging</b>			
1. Has all equipment been inspected prior to use	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Recommended safe load capacity on all equipment	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. All slings and webs properly identified	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Lifting area cordon off	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Job rules posted by material hoist	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Is overhead protection adequate	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 9 – Hand and Power Tools</b>			
1. Adequate inspection and maintenance	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. All required guards in place	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Positive on/off control switches	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 10 – Welding &amp; Cutting</b>			
1. Cylinders properly stored and secured	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Hoses in good repair	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Adequate inspection for fire hazards	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Flash suppressors installed where applicable	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Hot Work Permits	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Cables free from splices or repairs 10' from electrode holder	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Spliced and connectors well insulated	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Adequate grounding	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Adequate fire extinguishers near by	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Adequate ventilation	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 11 – Electrical Safety</b>			
<b>Section 11.2 – Ground Fault Protection</b>			
1. Adequate ground fault circuit interrupters	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Ground fault testing/color code program	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Proper lockout/tagout	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Proper signs and warnings posted	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Proper cords and cables	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Proper lighting	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 11.3 – Lockout/Tagout</b>			
1. Lockout/Tagout log maintained	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Adequate lockout/tagout devices	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Adequate training conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Section 12 – Scaffolding</b>			
<b>12.1 – Scaffolding</b>			
1. Proper construction/condition	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Properly secured	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Adequate rails, toeboards, midrails, and screen	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Ladders properly constructed	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Proper training given and documented	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>12.2 – Aerial Lifts</b>			
1. Equipment inspected and maintained	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Adequate cables, slings, and shackles	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Inspection log on file	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Adequate capacity	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Properly set-up/outriggers	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Adequate hand voice communications	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Adequate training/records	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Appendix B  
Page 4**

**Needs**  
Satisfactory Improvement Comments

**Section 13 – Fall Protection**

- |                                      |                          |                          |       |
|--------------------------------------|--------------------------|--------------------------|-------|
| 1. Harnesses & Lanyards              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Fall protection scaffolds         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Fall protection systems           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Anchorage – points satisfactory   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Training conducted and documented | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 14 – Cranes**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Inspection logs for daily and annual inspections on file  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Adequate capacity/proper usage                            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate hand/voice communication and illustration posted | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Proper fire extinguishers                                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Properly set-up/barricaded                                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Hook inspection current                                   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 15 – Fleet Safety**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Driver's licenses checked/recorded      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Proper training and documented          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Equipment maintained and in good repair | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 16 – Excavations & Trenching**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Utilities located & appropriate owner's & agencies contacted | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Competent person assigned to the work                        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Permit completed   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Sloping, benching, or shoring method selected & followed     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Access/egress provided                                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 20 – Stairways and Ladders**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Stairways installed where required         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Stairways properly constructed             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Proper ladders per ANSI A14.1-2 and 5 used | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Extend 36" above top landing               | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Properly tied off                          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Proper training documented                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Name of Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

Distribution:  
  
 Project Manager  
 Superintendent  
 File



# Minnesota AWAIR Program

## Section 3.13

### Purpose

The Company has developed the following statement to communicate our compliance with the Minnesota AWAIR Act. This document identifies the key components of the AWAIR Act and how our Written Health & Safety Program satisfies those requirements.

### References

Minnesota OSHA, Chapter 182.653, Subd. 8.

### AWAIR Program Requirements

The requirements of A Written Accident & Injury Reduction (AWAIR) Program, as identified in the state statute, require applicable employers to have a written program that includes the following:

1. How managers, supervisors, and employees are responsible for implementing the program and how continued participation of management will be established, measured, and maintained,
2. The methods used to identify, analyze, and control new or existing hazards, conditions, and operations,
3. How the plan will be communicated to all affected employees so that they are informed of work-related hazards and controls,
4. How work place accidents will be investigated and corrective action implemented,
5. How safe work practices and rules will be enforced.

In addition to the (5) five core objectives listed above, employers are also required to conduct and document a review of the Workplace Accident & Reduction Program at least annually with documentation providing how the procedures set forth in the program are being met

The Company has developed a comprehensive Health & Safety Program that complies with the Minnesota AWAIR Act and other applicable laws that govern our work. This program has specific sections that correspond to the provisions listed in the AWAIR Act, which are as follows:

#### *Response to Requirement 1 of the AWAIR Program*

Responsibilities and Authorities section of this Health and Safety Manual specifically identifies the roles and responsibilities of all disciplines employed by the company. Each employee within the company has clear and concise expectations with respect to their role and participation in this program. This section also identifies that an Executive Safety Committee will assemble periodically throughout the year to review company safety and loss control performance with respect to annual goals and objectives.

#### *Response to Requirement 2 of the AWAIR Program*

The Company utilizes a combination of programs for hazard identification, elimination, and or control methods to reduce hazards in the workplace. The Company makes reasonable efforts to eliminate or engineer out a safety hazard as the first method of control. If that method is not feasible, we rely on administrative controls, safe work practices, and PPE determined by JHA's and inspection results completed by supervisors, management, safety committees, and individuals working directly with the process or equipment in question.

#### *Response to Requirement 3 of the AWAIR Program*

A safety orientation shall be conducted prior to job start-up for all current employees and for each newly hired employee. This training requires all employees to demonstrate competency of the materials covered as well

# Minnesota AWAIR Program

## Section 3.13

### Compliance with the AWAIR Program

as knowledge of applicable work place hazards and the methods to eliminate or reduce them. Documentation of this training is required.

#### *Response to Requirement 4 of the AWAIR Program*

All workplace accidents will be immediately investigated. Once the investigation is completed, applicable personnel shall discuss the root cause of the incident and determine the necessary loss prevention methods to be implemented to prevent reoccurrence.

#### *Response to requirement 5 of the AWAIR Program*

The Company has specific requirements outlined in the Policy Enforcement and Disciplinary Action section of this manual for disciplining employees, if necessary. The Company institutes a progressive "Three Strike" disciplinary program. However, there are alternative provisions for dealing with incidents of severe consequences. All disciplinary action is required to be documented.

Lastly, all employees are to receive instruction with respect to this Policy Enforcement and Disciplinary Action Program at the time of hire.

**The AWAIR Program and its components will be reviewed on an annual basis as required. The MN OSHA AWAIR Checklist (Appendix A) will be used as a guideline. Revisions may or may not be taken at that time.**

### Appendices

#### Appendix A – AWAIR Checklist

# Minnesota AWAIR Program

## Section 3.13

### APPENDIX A - AWAIR CHECKLIST ELEMENTS OF AN EFFECTIVE WRITTEN AWAIR PROGRAM

**I. The Program is in Writing.** **Yes Partial No**

**II. Management Commitment and Planning** **Yes Partial No**

1. Have policies and objectives been established and communicated to all employees?
2. Have responsibilities been defined and authority assigned?
3. Have adequate company resources been allocated for safety and health (staff, equipment, safety promotion, etc.)?

DETAILS:

**III. Hazard Assessment and Control** **Yes Partial No**

1. Has a comprehensive safety and health survey been done?
2. Is there a reliable procedure for employees to use to report possibly hazardous conditions?
3. Are accidents and/or near-miss incidents that may result in an injury or illness reviewed?
4. Is there an equipment maintenance program?
5. Are engineering and PPE controls in place as appropriate?
6. Are administrative controls, including safety and health rules, established and implemented?

DETAILS:

**IV. Communication** **Yes Partial No**

1. Is management involved in employee safety and health?
2. Are there clear lines of communication for safety and health concerns? Do employees know whom to notify, fear no reprisal, and receive timely and appropriate responses?

DETAILS:

**V. Accident Investigation/Corrective Action** **Yes Partial No**

1. Are there procedures to be followed for investigating accidents?
2. Are emergency planning and response procedures in place?

DETAILS:

**VI. Enforcement Procedure** **Yes Partial No**

1. Is there is an established system in place for fair and uniform enforcement of company safety and health rules?

DETAILS:

**VII. The Program is annually reviewed.** **Yes Partial No**

# Medical Services and First Aid

## Section 4.1

### Purpose

The Company is dedicated to the protection of its employees from on-the-job injuries and illnesses. However, when injuries or illnesses do occur, we are prepared to immediately respond to the needs of the injured or ill.

### References

OSHA 1926.50, 1910.151

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and / or Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of all tool in the work environment.

### Hazard and Medical Services Assessment

The Supervisor and / or Manager shall assess the project or fixed facility for hazards to determine whether any pose the risk of a life-threatening or permanently disabling injury or illness.

When the nearest hospital or clinic is located over four minutes away, the Company is required to train an on-site employee in first aid.

When hazards or locations change, the Supervisor re-assesses our risk and determines whether or not we are required to train an on-site employee in first aid.

### First Aid Supplies and Equipment

It is important that our first aid supplies and equipment meet the specific needs of our workplace.

The Supervisor has ensured that adequate first aid supplies are readily available, including:

1. Variety of bandages,
2. Compresses,
3. Gauze pads
4. Antiseptic swabs
5. Burn treatments
6. Adhesive tape
7. Latex or similar gloves

The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item.

#### *Construction sites*

The contents of the first-aid kit shall be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

#### *General Industry*

Each first aid kit shall be maintained, shall be readily available for use, and shall be inspected frequently enough to ensure that expended items are replaced but at least once per year. Supplies are replaced promptly when expended.

The company provides the following personal protective equipment to employees who may be exposed to blood or other potentially infectious materials while rendering first aid:

1. Eye protection
2. Gloves

# Medical Services and First Aid

## Section 4.1

See the written Exposure Control Program for further details.

### **Accident Reporting**

Please refer to Section 3.4, OSHA Record Keeping and Reporting Occupational Injuries and Illnesses, of this manual, for instruction on reporting losses, injuries and other incidents.

### **Recordkeeping**

The Safety Manager is responsible for maintaining the following records and documentation relating to first aid, injuries, illnesses, and accidents. The First Aid Log, listed as *Appendix A* of this section, can be used to maintain a log of all project or fixed facility employee first aid cases.

### **Training**

Employees shall NOT attempt to rescue or treat an injured or ill employee unless they are qualified to do so. Instead, they should contact someone who is qualified.

### **Appendices**

Appendix A - First Aid Log for Minor, Non-recordable Injuries



# Sanitation

## Section 4.2

### Purpose

The purpose of this policy is to identify general sanitation and hygiene requirements for all projects to assure the safety and well-being for all employees.

### References

OSHA 1926.51, 1910.141

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall be responsible for providing assistance through training, identification of potential hazards, and the ability to make recommendations for corrective action. This individual shall periodically audit job-sites for compliance with this program and report any deficiencies to the applicable Supervisor or Manager.

#### *Employee*

Shall be responsible for adhering to the provisions outlined in this policy.

### Sanitation

#### *Potable and Non-Potable Water*

For the purposes of this policy, Potable Water is defined as "approved for drinking or consumption". Potable water requirements for all projects are listed below:

1. An adequate supply of water shall be provided in all places of employment.
2. Water containers must be tightly closed and equipped with a tap.

3. Water containers are to be cleaned as necessary with a 10:1 solution of water and bleach to prevent the spread of disease.
4. Water shall not be dipped from containers.
5. Containers shall be marked: *Potable Water or Drinking Water*.
6. A common drinking cup is prohibited.
7. A method shall be provided to keep sanitary cups in a sanitary container.
8. A refuse container shall be provided in close proximity to the water container.

Non-potable water shall be defined as "water not suitable for drinking or consumption". Non-potable water requirements for all projects are listed below:

1. Outlets for non-potable water shall be identified by signs and labeled "Unsafe for Consumption or Non-Potable".
2. There shall be no cross-connection between potable water and non-potable water.

#### *Toilets*

At a minimum, the ratio for toilets to total number of employees shall be as follows:

1. 20 or less employees; 1 toilet.
2. 20 or more employees; 1 toilet seat and 1 urinal / 40 employees.
3. 200 or more employees; 1 toilet and 1 urinal / 50 employees.

It may be desirable to provide separate toilets for both male and female employees. The Supervisor / Manager shall exercise his or her discretion for this consideration.

If permanent sewer systems are not available, options include:

1. Privies.
2. Chemical toilets.

# Sanitation

## Section 4.2

3. Recirculating toilets.
4. Combination toilets.

The Supervisor / Manager shall make the necessary arrangements to have toilets and or toilet areas maintained or otherwise cleaned on an established schedule in order to establish a clean and hygienic environment.

### *Washing Facilities*

The Company shall provide its employees with a means to wash themselves as necessary. Employees shall be afforded a method to do so with one or a combination of the following options:

1. Hot and cold running water or tepid running water.
2. Hand soap or similar cleansing agent shall be provided.
3. Hand and face drying material shall be provided as follows:
  - a. Individual hand towels
  - b. Warm air blowers
  - c. Individual section of continuous cloth toweling

### *Eating and Drinking Areas*

Employees shall not be permitted to consume food or beverages in:

1. Toilet Rooms
2. Laboratories
3. Chemical areas
4. Hazardous material locations

### **Vermin Control**

Enclosed workplaces shall be maintained in such fashion as to prevent the entrance and or existence of rodents and insects. An extermination program shall be implemented if a rodent or insect problem is discovered.

### **Training**

Employees shall receive basic instruction on the contents of this section upon hire and periodically thereafter.

# Occupational Noise Exposure

## Section 4.3

### Purpose

It is the policy of this company to institute an occupational hearing conservation program for our employees in order to prevent any temporary or permanent noise-induced hearing loss by employees.

### References

OSHA 1926.52, 1910.95

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understood their responsibilities with respect to noise exposure in the work environment.

### Monitoring

The monitoring program is in place to provide an ongoing means of determining employee exposure to noise and protect employees based on excessive exposure.

To determine employee exposure to noise, we may use the following types of calibrated equipment: dosimeters or sound level meters.

The company notifies all employees exposed at or above an 8-hour time-weighted average of 85 decibels (dB) of the results of the monitoring by a report.

The company provides and / or affords affected employees, or their representatives, to observe any noise measurements conducted. The company identifies and procures proper hearing devices for affected employees.

Monitoring is repeated whenever a change in production, process, equipment, or controls increases noise exposures to the extent that either additional employees may be exposed at or above the action level or the attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of noise reduction.

### Audiometric Testing Program

The program ensures that a valid baseline audiogram is established for exposed employees within 6 months of their first exposure (or within one year if mobile vans are used, with employees wearing hearing protection for any period exceeding six months).

Audiometric testing is repeated annually.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour (time weighted average) TWA of 90 decibels indicates that a standard threshold shift is not persistent, the company informs the employee of the new audiometric interpretation and discontinues the required use of hearing protectors for that employee.

### Hearing Protection

The company makes hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees.

The company ensures that employees have a variety of suitable protectors that attenuate (lower) employee exposure at least to an 8-hour time-weighted average of 90 decibels, or 85 decibels or lower for employees who have experienced a standard threshold shift in their hearing. The company provides a

# Occupational Noise Exposure

## Section 4.3

variety of hearing protection devices to persons who are required to wear them. The types of protective devices available include:

1. Ear Muffs (circumaurals),
2. Ear Plugs: (pre-formed, custom-molded, and expandable),
3. Canal Caps (superaurals),
4. Enclosure helmet.

The company ensures evaluation for adequacy of the hearing protection attenuation for the specific noise environments, in which the protector will be used.

For employees who have experienced a significant threshold shift, hearing protector attenuation must be sufficient to reduce employee exposure to a TWA of 85 dB.

The company uses the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA) to estimate the adequacy of hearing protector attenuation. The NRR must be shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector.

The Company reevaluates attenuation whenever employee noise exposures increase to the extent that current hearing protectors no longer provide adequate attenuation, and then provides more effective hearing protection.

### Recordkeeping

Recordkeeping is an essential element of the hearing conservation program, since it is the means by which hearing levels are tracked and assessed over a period of time. The company has in place a series of measures to maintain comprehensive and up-to-date records.

The company maintains accurate records of all employee audiometric test records obtained including:

1. Name and job classification of the employee;
2. Date of the audiogram;
3. The examiner's name;
4. Date of the last acoustic or exhaustive calibration of the audiometer;
5. Employee's most recent noise exposure assessment; and
6. Measurements of the background sound pressure levels in audiometric test rooms.

The Company retains noise exposure measurement records for two years and audiometric test records for the duration of the affected employee's employment plus 30 years.

The company provides access to records to employees, former employees, representatives designated by the individual employee, and OSHA, upon request.

In addition, when an employee experiences a standard threshold shift (STS), as defined in Section 1910.95, the standard threshold shift is work-related, and the employee's aggregate hearing loss exceeds 25 dB from audiometric zero, then the hearing loss case must be recorded on the OSHA 300 Log. Refer to the flowchart in *Appendix A* to determine whether the results of an audiometric exam given reveal a recordable STS.

### Training and Information

The Company has a hearing protection training program for all employees exposed to noise at or above an 8-hour time-weighted average of 85 dB.

# Occupational Noise Exposure

## Section 4.3

The Company ensures employee participation in the hearing protection training program. The Company makes copies of the standard available to affected employees or their representatives. The Company posts a copy of the standard. The Company repeats the training program annually. The Company assures that the training material is updated to be consistent with changes in the protective equipment and work processes.

The Company assures that each affected employee is informed of at least the following information:

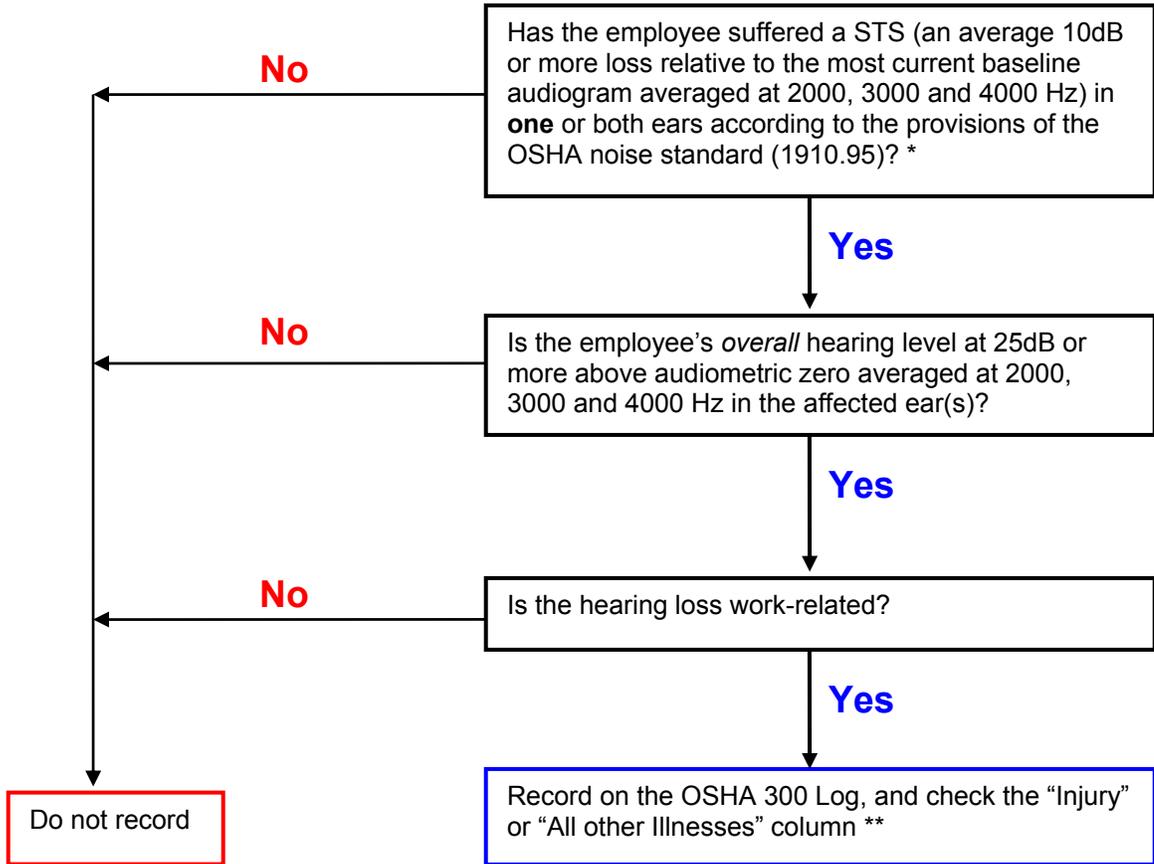
1. The effects of noise on hearing;
2. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and
3. The purpose of audiometric testing, and an explanation of test procedures.

### Appendices

Appendix A – Standard Threshold Shift (STS), “Decision Tree”

## Appendix A Standard Threshold Shift (STS) “Decision Tree”

Using this ‘**Decision Tree**’ to determine whether the results of an audiometric exam given on or after January 1, 2003 reveal a recordable STS.



Note: In all cases, use the most current baseline to determine recordability as you would to calculate a STS under the hearing conservation provisions of the noise standard (1910.95). If an STS occurs in only one ear, you may only revise the baseline audiogram for that ear.

\* The audiogram may be adjusted for presbycusis (aging) as set out in 1910.95.

\*\* A separate hearing loss column on the OSHA 300 Log beginning in Calendar year 2004.

# Non-Ionizing Radiation

## Section 4.4

### Purpose

The Company has developed the following safety requirements for the control of non-ionizing radiation, e.g., arc flash from welding operations, for the protection of our employees and the employees of others.

### References

OSHA 1926.54, 1910.97

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers / Supervisors by providing employee training, resource materials, and technical assistance in support of this program. This individual shall also periodically audit projects and fixed facilities to assure these rules have been implemented and enforced.

#### *Employee*

Shall have read, understand, and be held accountable to these requirements and their workplace actions.

### General

The Supervisor and / or Manager, or their designee, shall evaluate projects and fixed facilities for non-ionizing hazards and take the necessary precautions to minimize or eliminate such hazard.

The primary non-ionizing hazard created by Company work activity comes from arc flash caused by welding activities. Employees performing welding activities shall be provided eye protection, listed in *Appendix A* of this section entitled, Lens Shade Protection Chart.

In areas where welding activities are being performed, the Supervisor or Manager shall erect welding curtains or other appropriate shielding to protect employees and / or other personnel from arc flash hazards.

### Training

All applicable employees shall receive basic instruction on the contents of this program upon date of hire and periodically thereafter.

### Appendices

Appendix A – Lens Shade Protection Chart

**Appendix A**  
**Lens Shade Protection Chart**

<i>Welding Operations</i>	<i>Lens Shade Number</i>
Shielded metal-arc welding (1/16", 3/32", 1/8", 5/32" diameter electrodes)	10
Gas-shielded arc welding (nonferrous) [1/16", 3/32", 1/8", 5/32" diameter electrodes]	11
Shielded metal-arc welding [3/16", 7/32", 1/4" diameter electrodes	12
5/16", 3/8" diameter electrodes	14
Atomic Hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch Brazing	3 or 4
Light cutting, up to 1" stock	3 or 4
Medium cutting, 1" to 6" stock	4 or 5
Heavy cutting, over 6" stock	5 or 6
Gas welding (light), up to 1/8" stock	4 or 5
Gas welding (medium), 1/8" to 1/2" stock	5 or 6
Gas welding (heavy), over 1/2" stock	6 or 8

# Illumination

## Section 4.5

### Purpose

The purpose of this procedure is to identify the minimum levels of illumination in the work area.

### References

OSHA 1926.56, 1910.333

### Responsibilities

#### *Manager / Supervisor*

Shall assure the minimum requirements of this program are implemented. The supervisor assesses workplace conditions and takes the necessary actions to provide adequate lighting for the workplace and our employees.

#### *Safety Manager*

Shall periodically audit projects and fixed facilities for compliance with these requirements.

#### *Employee*

Shall have read, understand, and be help accountable to these rules and their workplace actions.

### General Requirements

Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted to not less than the minimum illumination intensities listed in the table below while any work is in progress:

Foot-Candles	Area of Operation
5	General construction area lighting.
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exit ways.
5	Tunnels, shafts, and general underground work areas. <sup>1</sup>
10	General construction plant and shops. <sup>2</sup>
30	First aid stations, infirmaries, and offices.

<sup>1</sup> (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Bureau of Mines approved cap lights shall be acceptable for use in the tunnel heading)

<sup>2</sup> (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active store rooms, mess halls, and indoor toilets and workrooms.)



# Hazard Communication

## Section 4.6

### Purpose

The purpose of this written program is to provide a system for communicating chemical hazards likely to be found in the workplace. It applies to all Company work sites where hazardous chemicals are used or where they can be expected to result in employee exposures.

### References

OSHA 1910.1200

### Responsibilities

#### *Manager / Supervisor*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety and Risk Professional*

Shall be responsible to ensure each element of this program is fully implemented and enforced by providing materials and support including the following:

1. Maintain a Company / jobsite-specific right-to-know / hazard communication program including company specific inventory list and Safety Data Sheets (SDS).
2. Train employees who may be exposed to hazardous products and / or materials.
3. Ensure product information labels are available and affixed to applicable containers.
4. Communicate with the owner / general contractor on chemical hazards associated with our work and the work of other companies.

#### *Employees*

Shall have the responsibility to follow safe practices as outlined on the SDS, exercise

caution, and good judgment in dealing with associated hazards.

### General

1. A list of hazardous chemicals known to be present shall be maintained.
2. The Company shall train and inform employees of the known hazards involved with non-routine tasks and the hazards associated with chemicals contained in unlabeled pipes in their work area.
3. On multi-employer jobsites the Company shall communicate will all affected employees / contractors on the site by sharing the applicable inventory list, SDS's, and labeling methods for that specific job / task.
4. Where Company employees must travel between work places / jobsites during a work shift, the written program may be kept at the primary job.
5. All SDS's and information provided to employees shall be in English. However, if the Company hires a non-English speaking employee(s), they shall be provided hazard communication in their native language.

### Safety Data Sheets

The intent of a SDS is to provide readily accessible information regarding the characteristics of the company products and intermediate materials and the appropriate safe work habits for each. All job locations shall have access to applicable SDS's for their job.

The SDS utilizes a standardized format organized into sixteen sections. These section heading include, chemical identification, hazard identification, composition/information on ingredients, first aid, firefighting measures, accidental release measures, handling and storage, exposure controls / personal protection, physical and chemical properties, stability and reactivity, toxicology information, ecological information, disposal considerations, transport information, regulatory information, and other information.

# Hazard Communication

## Section 4.6

A SDS must be obtained for each required chemical from the chemical manufacturer, supplier, or vendor prior to delivery or at the time of delivery.

### Labeling

Each container or hazardous product received from manufacturer, importer, or distributor shall be delivered with the Global Harmonized System (GHS) compliant label. The label must include:

- **Product Identifier:** States the name or code used to identify the chemical product.
- **Signal word:** Indicates severity of hazard as either 'Warning' or 'Danger'.
- **Hazard Statement:** Provides a brief description of hazard class and nature of hazard.
- **Pictogram:** Uses GHS standardized symbols to specify/show chemical product hazard class.
- **Precautionary-statement:** State recommended steps for safe use, handling and storage of chemical product.
- **Manufacturer Information:** Company name, address and telephone number.

The label must remain intact at all times. If the label is destroyed or defaced in any manner that renders it unreadable, we must immediately provide a new label for the container or package. The new label shall contain the same information regarding hazard ratings and PPE as the Manufacturer's labels.

Small containers filled from larger containers must be labeled unless the small container will be immediately used by the individual making

the transfer.

### Training

The Company will provide employees with information and training on the hazardous chemicals in their work area, at new hire, at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

The training should cover at a minimum:

1. The location and availability of the written Right-to-know / Hazard Communication Program.
2. An explanation of the Hazardous Material Identification System (HMIS).
3. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
4. The physical and health hazards of the chemicals in the work area.
5. Measures employees can take to protect themselves from chemical hazards. This shall include specific programs the Company has implemented to protect employees from exposure, such as appropriate work practices, emergency programs, and personal protective equipment to be used.
6. Adoption of GHS (classification of hazards, revised terminology and definitions, labeling, pictograms and SDS)

### Appendices

- Appendix A – NFPA Fire Diamond
- Appendix B – GHS Labeling



# Appendix B

## HMIS Labeling

### Six elements of the new Globally Harmonized Standard (GHS) label format

- Signal Word:** Indicates relative level of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.
- Symbols (Hazard Pictograms):** Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.
- Product Name or Identifiers\***
- Hazard Statements:** Phrases that describe the nature of hazardous products and oftentimes the degree of hazard.
- Precautionary Statements:** Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.
- Manufacturer Information:** Company name, address & telephone number.

**DANGER** **Carbon Monoxide**

H220: Extremely flammable gas. - H331: Toxic if inhaled. - H360D: May damage the unborn child. - H372: Causes damage to organs through prolonged or repeated exposure

Keep container tightly closed. Avoid breathing vapours. If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or doctor. Store in a well-ventilated place.

30.0 L 3630-09-0 000-001-00-2 Company ABC  
211-129-3 \*\*\*\*\* New York, New York  
555-0123-456

\*Additional Product Identifiers

### Chemical / Physical Risk

<b>GHS Explosive</b> Explosives, self-reactives, organic peroxides	<b>GHS Flammable</b> Flammable gases, liquids, & solids; self-reactives; pyrophorics; self-heating	<b>GHS Oxidizing</b> Oxidizers	<b>GHS Gas Pressure</b> Gases under pressure	<b>GHS Corrosive</b> Corrosives

### GHS pictogram symbols and hazard classes

The new GHS symbols, also known as hazard pictograms, will be used to identify hazardous products and are commonly grouped by chemical/physical risk, health risk and environmental risk.

### Health Risk

<b>GHS Corrosive</b> Corrosives	
<b>GHS Severe Toxic</b> Acute toxicity (severe)	
<b>GHS Acute Toxic</b> Irritant, dermal sensitizer, acute toxicity (harmful)	
<b>GHS Health Danger</b> Carcinogens, respiratory sensitizers, reproductive toxicity, target organ toxicity, germ cell mutagens	

### SAMPLE LABEL

CODE _____	} <b>Product Identifier</b>	<b>Hazard Pictograms</b> 
Product Name _____		
Company Name _____	} <b>Supplier Identification</b>	<b>Signal Word</b> <b>Danger</b>
Street Address _____		
City _____ State _____		
Postal Code _____ Country _____		
Emergency Phone Number _____		
Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.	} <b>Precautionary Statements</b>	<b>Hazard Statements</b> Highly flammable liquid and vapor. May cause liver and kidney damage.
<b>In Case of Fire:</b> use dry chemical (BC) or Carbon Dioxide (CO <sub>2</sub> ) fire extinguisher to extinguish.		
<b>First Aid</b> If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.	} <b>Supplemental Information</b>	<b>Directions for Use</b> _____ _____ _____
		Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

### Environmental Risk

<b>GHS Environmental</b> Aquatic toxicity	
--	--

# Lead Exposure Control Procedures

## Section 4.7

### Purpose

This procedure is provided for the protection of personnel, co-workers, and others working under the control or supervision of the Company by establishing minimal acceptable standards for working around and with lead and lead containing coatings.

### References

OSHA 1910.1025, 1926.62, 1926.354

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible to conduct effective Pre-Job Planning to identify levels of protection and clean-up facilities that may be required for working in an area where dusts or fumes may impact employee Health & Safety.

#### *Safety Manger*

Shall be responsible for the implementation of a site specific lead exposure program, training, and providing industrial hygiene consultation and support.

#### *Employees*

Shall be responsible for reporting suspected lead exposures and for following site specific lead abatement programs.

### Definitions

#### *Acute Effect*

Immediate and severe result of a short-term exposure

#### *Action Level*

Thirty (30) micrograms per cubic meter of air calculated as an eight (8) hour time-weighted average for Lead.

### *Exposure Assessment*

Employers are required to determine if any employee is exposed to lead concentrations at or above the actions level of thirty (30) micrograms per cubic meter of air as an eight (8) hour time weighted average.

### *Permissible Exposure Limit (PEL)*

An eight (8) hour time weighted average of (50) micrograms per cubic meter of air.

### Potential sources of Lead Exposure

Tasks that may expose workers to potentially harmful lead levels include:

1. Airborne dusts generated during demolition.
2. Fugitive dusts on surfaces.
3. Dust generated by work activities in an area.
4. Fumes generated when burning metal coatings.

### Routes of Entry

Primary methods of exposure:

1. Inhalation of lead from paint dusts that have been generated by grinding, cutting or other methods of making dusts airborne.
2. Inhalation of respirable dusts raised in the immediate work area that may contain lead from previous work activities.
3. Ingestion of lead dust or debris during eating, drinking, or smoking because of poor hygiene practices.

### Health Effects

The effects of exposure to lead vary from person to person.

1. The first symptoms exhibited are within four to eight hours after exposure and is preceded by a foul or 'metallic' taste.

# Lead Exposure Control Procedures

## Section 4.7

2. Other symptoms may be an upper respiratory irritation accompanied by coughing and dryness of the mucous membranes, muscle cramps, nausea, vomiting and mild to severe headaches.
3. Chronic exposure to airborne lead fumes or dust effects the central nervous system, causes constipation, colic, anemia, fatigue and insomnia.

### Area Monitoring

Air sampling will be conducted in work areas suspected to contain lead to determine size and concentrations of airborne dust. If airborne lead levels exceed 30 micrograms per cubic meter, employees will be evacuated from the area until lead exposures are no longer a concern. This determination will be made after a review of the monitoring results.

### Personal Monitoring

Personal monitoring is a air sample taken while the filter is worn by an employee in the work area where lead containing dusts or fumes may be generated during demolition or construction activities.

1. Monitoring is typically conducted on employees performing welding, torch cutting, burning, sandblasting, grinding, or using a wire wheel n lead containing material to determine the employee's lead exposure level.
2. If initial personal air monitoring results indicate employees may be exposed to airborne lead concentrations above the OSHA PEL of 50 micrograms per cubic meter, employee respiratory protection is required as well as full body work coveralls, gloves, hat and footwear protection.
3. Once personal air monitoring results have exceeded the OSHA PEL of 50 micrograms per cubic meter, additional personal air monitoring will continue until two consecutive air monitoring results indicate the employee exposure level is below the OSHA PEL.

### Personal Protective Equipment

Unless specifically required for a project, Company approved PPE items will include:

1. Respiratory protection.
2. Coveralls or similar full-body work clothing.
3. Gloves, hats, and disposable shoe coverlets.
4. Face shields, vented goggles or other appropriate eye and face protection.

### Personal Hygiene and Decontamination

Safe practices for avoiding consumption of contaminated dusts include:

1. Washing face and hands with soap and water before eating or drinking.
2. Do not carry or consume food or drink in the work area.
3. Do not use tobacco or consume chewing gum in the work area.

The process of containing and controlling contamination includes:

1. Remove dusts and debris from clothing and foot wear before leaving the work area.
2. Do not enter your vehicle to travel home or to other destinations with contaminated clothing or foot wear (use a HEPA vacuum or wet-wipes)
3. Wash exposed skin before leaving the jobsite.
4. Shower and shampoo hair as soon as possible after work to avoid spreading contamination at the home.
5. Never use compressed air to blow dust.

# Lead Exposure Control Procedures

## Section 4.7

### Signage

The following signage must be posted at access/egress points to any enclosure or work area where lead abatement activities are in progress:

**Warning  
Poison  
Lead Work Area  
No Smoking, Eating, or Drinking**

### Training

Employees shall receive training on the contents of this program prior to the commencement of work activities that involve work on/or adjacent to lead hazard exposures, and periodically thereafter.

# Silica – Exposure Control Procedure

## Section 4.8

### Purpose

The purpose of this procedure is to reduce or eliminate worker exposure to silica and silica containing materials while performing their assigned job duties. This will be accomplished when feasible through implementation of accepted engineering or administrative controls.

### References

OSHA 1926.50

### Scope

This procedure is applicable to all workplaces and facilities where: abrasive blasting using silica sand, abrasive blasting of concrete, chipping or drilling on rock, concrete or masonry is being performed as well as demolition of concrete and masonry structures. This procedure also applies to dry sweeping or air blowing of concrete / sand dust is performed.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall determine silica exposure levels and evaluate the exposures to determine if engineering or administrative controls will be effective.

#### *Employee*

Shall be responsible to follow proper work procedures as outlined in this section.

### Identifying Hazards

The company may engage in these activities that have the potential for exposure:

1. Chipping, jack hammering, grinding, drilling and cutting or sawing of concrete and certain types of rock containing silica.
2. Sawing, hammering, drilling, grinding, chipping, or mixing of concrete.
3. Dry sweeping or pressurized air blowing of concrete, rock, or certain types of sand dust.
4. Abrasive sand blasting (using alternative abrasive blasting material such as "Black Max" does not pose a health hazard)

### Engineering Controls

The following engineering controls are preferred to reduce airborne silica during concrete grinding, concrete sawing, drilling into concrete or demolition of masonry structures:

1. Housekeeping: remove dust before it becomes airborne by traffic, vibration and random air currents. Vacuums with high-efficiency particulate air (HEPA) filters should be used for clean-up operations.
2. Isolation: hazardous operations should be isolated to reduce exposures to employees such as a physical barrier.
3. Ventilation: Local exhaust ventilation captures contaminants at their source before they can escape into the jobsite.
4. Wet work: Airborne silica dust hazards can be minimized or greatly reduced by applying water. When possible, apply water to all respirable silica dust generating operations (sawing, drilling, cutting, etc.)

### Training

Employees will be trained in the health effects, engineering controls, work practices that minimize exposure and the importance of maintenance and good housekeeping. Those employees requesting or are required to use respiratory protection will be trained in accordance with Section 5.2 of this manual, entitled Respiratory Protection.

# Asbestos

## Section 4.9

### Purpose

The purpose of this procedure is to formally establish the company's actions for employees who encounter Asbestos Containing Material (ACM), or Presumed Asbestos Containing Material (PACM), on the jobsite. It is the policy of this Company not to engage in activities involving asbestos materials, when such activities would result in the exposure of our employees to friable asbestos. In the event activities of employees of others result in the real potential of our employee being exposed to asbestos, the supervisor will cease work activities in the affected area until the condition is abated.

### References

OSHA 1926.1101

### Responsibilities

#### *Managers / Estimators / Superintendents*

It is the responsibility of the Estimator and Manager to make the initial inquiry to the building owner if asbestos is present in the building or premises prior to the commencement of work activities. During construction it is the Project Superintendent's responsibility in coordination with the Manager to ensure our employees do not disturb and are not exposed to asbestos.

#### *Safety Manager*

Shall be responsible for the training of personnel who may encounter asbestos on the job-site.

#### *Employees*

Shall be responsible for reporting areas suspected of containing Asbestos and following written job hazard assessment safe work practices to prevent accidental release.

### Definitions

#### *Asbestos Containing Material (ACM)*

Any material that contains more than 1% asbestos.

#### *Class 1*

Activities involving the removal of ACM thermal insulating systems (TSI), and surfacing, and presumed asbestos containing material (PACM).

#### *Class 2*

Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes but is not limited to the removal of asbestos containing wallboard, floor tile and sheeting, roofing, and siding shingles, and construction mastics.

#### *Class 3*

Repair and maintenance operations where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed.

#### *Class 4*

Maintenance and custodial activities during which employees contact but do not disturb ACM / PACM and activities to clean up dust, waste and debris resulting from Class 1, 2, and 3 activities.

#### *Friable*

Easily crumbled and made airborne.

#### *Presumed Asbestos Containing Material (PACM)*

Thermal system insulation and surfacing material found in buildings constructed no later than 1980.

# Asbestos

## Section 4.9

### Pre-Planning

The Manager or Project Superintendent shall forward the Asbestos Information Inquiry, listed as *Appendix A* of this policy, to have client's disclose the presence of asbestos containing materials in their buildings or on their premises if the facility was constructed prior to 1980 or is suspected of having asbestos containing materials. This document shall be completed and reviewed prior to the beginning of any work activities. The Company shall not work on any material or product known or suspected of containing any asbestos material. If asbestos is found to be in the work environment, but will not be disturbed by our work or work performed by others, the Company shall provide asbestos awareness training and instruction on safe work practices for applicable employees.

### Permitted Work

Repair and maintenance operations where ACM or PACM materials are present but are encapsulated or contained in such a manner that disturbance is unlikely may be conducted under the following conditions:

1. A written Asbestos Hazard Assessment and work plan is prepared which will assure our employees are not exposed to Asbestos.
2. Specific training of effected employees is conducted to assure knowledge and adherence to the written plan.
3. The job-site foreman / superintendent assures that the provisions of the plan are followed and no release of airborne fibers occurs. If accidental exposure occurs it shall be handled as designated below.

### Accidental Exposure

If during the course of normal duties, in areas not designated "asbestos free" by the Owner, or accidental exposure is suspected, the job-site foreman / superintendent shall take the following action:

1. Immediately clear the area, minimizing dust, breaking, and / or additional exposure to employees. Generate a list of employees who were in the area and may have been exposed.
2. Immediately notify the Project Manager or Safety Manager who will immediately contact the Owner's representative and request any information the Owner may have on the material in question.
3. If the material is of unknown nature, a sample shall be taken and placed in a sealed plastic bag. The bag shall be clearly marked and forwarded to the Safety Manager or alternately to the Owner for laboratory analysis.
4. If the material is determined to contain asbestos, the employees who were exposed will be administered a written medical evaluation and will be medically evaluated.

### Training

All employees who work in areas where PACM may exist must have a minimum of 2 hours Asbestos Awareness training. This training addresses common working conditions such as, but not limited to:

1. Thermal Systems Insulation such as on steam lines and refractory brick.
2. Acoustical coatings and insulation on walls and ceilings.
3. Sprayed-on fire coatings found on structural members.
4. Plaster ceilings and walls and their sprayed coatings.

### Appendices

Appendix A – Asbestos Information Inquiry

## Appendix A Asbestos Information Document

All information listed on this form is required by federal and state environmental protection and employee health and safety laws and regulations. This is public information available to anyone. Failure to obtain this information as listed requires written authorization from both the operations vice president and APi Group, Inc. Risk Management before accepting this work.

### 1. All Buildings

- a. Was building constructed before 1980? Yes No

*If yes, assume **ALL** thermal insulation, sprayed or troweled on acoustical insulation or fire proofing, floor tiles, mastic, wallboard, roofing materials contains asbestos unless you or the building owner can prove otherwise by methods meeting 29 CFR 1926.1101(k)(5).*

- b. Request and obtain copies of all NESHAP notification (if any) regarding removal. National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 Subpart M regulations require before any renovation, remodeling, or removal activity involving the disturbance of AC can be undertaken, the state agency responsible for Clean Air Act enforcement must be notified.

Copies attached for all notifications and related documentation. Yes No

### 2. School Buildings (Public and Private)

- a. Request and obtain a copy of the “**Asbestos Building Inspection Report**”

*The asbestos materials inspection that is required under EPA’s Asbestos Hazard Emergency Response Act (AHERA) – 1986 rules – 40 CFR 763.*

Attached is your copy of the:

- i. “**Asbestos Building Inspection Report**”

*This includes: sampling scheme, sample locations, name of the inspector, analysis report of all samples, classification of all areas as ACM containing or non-ACM containing, and assessment of physical condition of the material.*

**This inspection report must be redone every 2 years.**

1. **Your walk-through inspection findings of the building(s).** Yes No  
2. **Accredited Management Planner review of the inspection.** Yes No

*This is a more detailed review of the facility than the initial inspection. This report details the risk for building occupants. The management planner will recommend a response option for each area containing ACM. This report is usually wrapped in with the initial inspection report. **It is a public record.***

**Appendix A**  
**Asbestos Information Document**  
**Page 2**

**3. Commercial and Public Buildings**

- a. Request and obtain a copy of ACM/PACM survey as required by 29 CFR 1926.1101.

*Before work begins, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the worksite.*

Copy of ACM/PACM survey attached. Yes No

- b. Request and obtain a copy of written notice from the building or facility owner that identifies the presence, location and quantity of ACM/PACM at the worksites in their building or facilities.

Copy of written notice attached. Yes No

**4. Privately Owned Buildings (Residential Homes and Apartment Complexes, etc.)**

***Is this section applicable?*** Yes No

- a. Request and obtain a copy of ACM/PACM survey as required by 29 CFR 1926.1101.  
*Before work begins, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the worksite.*

Copy of ACM/PACM survey attached? Yes No

- b. Request and obtain a copy of written notice from the building or facility owner that identifies the presence, location and quantity of ACM/PACM at the worksites in their building or facilities.

Copy of written notice attached? Yes No

- c. Attach a copy of an Indemnity Agreement from an authorized representative of the property confirming the existence or non-existence of asbestos in any part of the building including but not limited to:

1. Floor tile or ceiling tile and their mastic.
2. Wallboard, sprayed or troweled-on acoustical materials.
3. Insulation materials in the walls, ceilings, floors, etc.
4. Thermal insulation (TSI) on heat lines/systems.
5. Other areas which may be impacted by the installations, service or maintenance of the fire protection/alarm systems work contracted for.

Copy of written Indemnity Agreement attached? Yes No

**Estimator's name:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Branch:** \_\_\_\_\_

**For each category where required information is not obtained and attached to this document, written authorization/approval must be attached to this form before accepting this work. For information and assistance in meeting this company's qualification requirements, please contact the APi Group, Inc. Risk Management Department's Safety Manager.**

# Carbon Monoxide

## Section 4.10

### Purpose

To establish and implement requirements to ensure that safe carbon monoxide levels are maintained in the workplace.

### References

OSHA 1926.50

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by helping audit the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to reporting their concerns concerning unsafe atmospheres and cooperating with area monitoring procedures.

### Scope

This policy shall apply to all employees assigned in or have access to an area having direct exposure to carbon monoxide.

### Program Elements

The company shall make reasonable efforts to eliminate Carbon Monoxide in the work environment through the implementation of Engineering Controls.

The employer shall monitor environmental exposure of employees to carbon monoxide whenever:

1. Internal combustion engines discharge engine exhaust gases indoor, or
2. Un-vented space heaters are operated indoors.

The employer will ensure that carbon monoxide levels do not exceed the Permissible Exposure Limits set by local regulatory agencies.

Air monitoring shall be done during initial operation and frequently thereafter and during a period representing highest usage in areas where carbon monoxide exposure is most likely.

### Program Procedures

The following procedures must be followed to ensure proper monitoring:

1. Project locations and production areas will have area monitoring conducted to detect the presence of Carbon Monoxide. Notification to employees in these areas prior to sampling need to occur.
2. Gas monitors are calibrated according to manufacturer's specifications
3. Data is recorded to indicate the area or department, employee tested, and concentration levels.
4. Results are posted for employee review in monitored areas.
5. Records will be maintained at the applicable project location and or production environment.

### Training

When Carbon Monoxide can not be eliminated through engineering controls, the appropriate Hazardous Communication training shall be given to all applicable employees. Training will be initially at the time of hire and conducted periodically thereafter.



# Process Safety Management

## Section 4.11

### Purpose

Develop processes and requirements to be implemented for any work the Company conducts on or adjacent to an Owner's new or existing facilities and/or equipment that are covered by the OSHA Process Safety Management Standard. A complete listing of those chemicals covered by this standard is provided in *Appendix A* of this policy, entitled "Process Safety Management – Hazardous Chemical Listing".

### References

OSHA 1926.64, 1910.119

### Responsibilities

#### *Managers / Supervisors*

Assure the Owner's Safety Hazard Disclosure Inquiry is submitted to the Owner and completed prior to the commencement of any contracted work activities covered under the Process Safety Management Standard. They are also additionally responsible to see that the applicable Safety Manager is provided with a copy of such disclosure as well as the scope of work to be performed. This individual shall invest the necessary time and resources to assure that all aspects of this policy are effectively implemented.

#### *Safety Manager*

Shall review the responses on the Owner's Process Safety Management Hazard Disclosure to identify all Process Safety Standard requirements and generate a safe work action plan to be implemented for the work performed. This individual is also responsible to communicate with the Project Manager and Site Superintendent all applicable safety requirements necessary to perform such work. Where applicable, the Safety Manager shall conduct a pre-job safety analysis of the proposed work area to further identify both Owner and Company safety procedures and policies to be implemented prior to the commencement of work activities.

#### *Project Superintendent*

Shall be responsible to assure that all employees have received applicable training and are competent in the safe work practices that will govern the scope of work to be performed. This individual shall continuously monitor the work progression to assure that all applicable employees are adhering to the Owner's Process Safety Management Safety Requirements and Company-specific rules and policies.

#### *Employees*

Required to attend a Process Safety Management indoctrination course conducted by either the Owner or a Company representative prior to performing work activities in a Process Safety Management covered facility and or equipment. As employees, you are expected to actively participate in such course and fully understand the hazards unique to the work location and be accountable for following all applicable rules and regulations governing the work area.

### Work Process

Upon notification of project award, which is to be executed at a facility or on a system which is regulated by Process Safety Management Standards, the applicable Project Manager shall:

1. Prepare and forward the "Owner's Process Safety Management Hazard Disclosure, listed as *Appendix B* of this policy, to the owner or his / her agent for completion. This document affords the Company:
  - a. Verification that our work will be on or adjacent to hazardous process regulated under the Process Safety Management Standard.
  - b. A request to the Owner to provide notification of the known potential fire, explosion, or toxic release hazards related to our work as well as the identification of the covered process area.

# Process Safety Management

## Section 4.11

- c. A detailed explanation of the applicable provisions of the Owner's Emergency Action Plan that is utilized for that area.
  - d. An outline of the controls and / or procedures that govern our employee's entrance, presence, and / or exit in covered process areas.
  - e. The Owner's proposed methods for evaluating our performance in meeting our obligations as a Contractor in the Process Safety Management Standard.
  - f. Identification of the Owner's personnel whom we interface on process safety matters and to whom we will forward notification of any inquiry or illness with respect to a company employee.
  - g. Identification of adjacent areas that are not regulated under the Process Safety Management Standard.
  - h. Identification of any other hazardous chemicals materials in the work location that are not governed by the Process Safety Management Standard, yet can still present additional hazards to our employees.
  - i. Notification of additional safety requirements such as Personal Protective Equipment, Hot Work Procedures, air sampling or monitoring, etc.
  - j. A "reply required" date which is prior to the mobilization of craft labor.
- Process Safety Management covered areas.
- 2. Using the responses provided on the Owner's Safety Hazard Disclosure Inquiry:
    - a. Assure each employee is instructed in the known potential fire, explosion, or toxic release hazards related to their assigned work tasks, and
    - b. Assure each employee is knowledgeable in the applicable provisions of the Owner's Emergency Action Plan.
    - c. Advise the Owner's designated representative of unique hazards presented by our work, or discovered during the execution of our work, and
    - d. Assure each employee follows and is accountable for all applicable safety rules and requirements.

### Documentation

All Process Safety Management Training shall be documented and forwarded to the employee's project and or home office personnel file. Competency of training shall be demonstrated by each employee and included as part of the training materials.

Training shall be conducted initially for all New-Hire employees prior to embarking on work activities or whenever there is a change in work scope or process modification to the covered process area by the Owner during the course of our work. Refresher training shall be conducted periodically thereafter in accordance with Owner's requirements or if the employee shows any lack of understanding of Process Safety Management requirements.

### Appendices

Appendix A – Process Safety Management - Hazardous Chemical Listing

Appendix B – Owner's Safety Hazard Disclosure Inquiry.

Once the Owner's Hazard Disclosure Inquiry is completed and received, the Project Manager shall forward said document to the applicable Safety Manager and Project Superintendent for review. The document shall be reviewed and an action plan consisting of the following requirements shall be implemented. At a minimum, the Project Superintendent shall:

- 1. Conduct or arrange Owner-provided training for each employee to assure they are effectively trained in the safe work practices necessary to perform assigned tasks in

**Appendix A**  
**Process Safety Management – Hazardous Chemical Listing**

<b>Chemical Name</b>	<b>*CAS</b>	<b>**TQ</b>
Acetaldehyde.....	75-07-0	2500
Acrolein (2-Propenal).....	107-02-8	150
Acrylyl Chloride.....	814-68-6	250
Allyl Chloride.....	107-05-1	1000
Allylamine.....	107-11-9	1000
Alkylaluminums.....	Varies	5000
Ammonia, Anhydrous.....	7664-41-7	10000
Ammonia solutions (>44% ammonia by weight).....	7664-41-7	15000
Ammonium Perchlorate.....	7790-98-9	7500
Ammonium Permanganate.....	7787-36-2	7500
Arsine (also called Arsenic Hydride).....	7784-42-1	100
Bis (Chloromethyl) Ether.....	542-88-1	100
Boron Trichloride.....	10294-34-5	2500
Boron Trifluoride.....	7637-07-2	250
Bromine.....	7726-95-6	1500
Bromine Chloride.....	13863-41-7	1500
Bromine Pentafluoride.....	7789-30-2	2500
Bromine Trifluoride.....	7787-71-5	15000
3-Bromopropyne (also called Propargyl Bromide).....	106-96-7	100
Butyl-Hydroperoxide (Tertiary).....	75-91-2	5000
Butyl Perbenzoate (Tertiary).....	614-45-9	7500
Carbonyl Chloride (see Phosgene).....	75-44-5	100
Carbonyl Fluoride Cellulose Nitrate (concentration > 12.6% Nitrogen).....	9004-70-0	2500
Chlorine.....	7782-50-5	1500
Chlorine Dioxide.....	10049-04-4	1000
Chlorine Pentafluoride.....	13637-63-3	1000
Chlorine Trifluoride.....	7790-91-2	1000
Chlorodiethylaluminum.....	96-10-6	5000
1-Chloro-2, 4-Dinitrobenzene.....	97-00-7	5000
Chloromethyl Methyl Ether.....	107-30-2	500
Chloropicrin.....	76-06-2	500
Chloropicrin and Methyl Bromide mixture.....	none	1500
Chloropicrin and Chloride mixture.....	none	1500
Cumine Hydroperoxide.....	80-15-9	5000
Cyanogen.....	460-19-5	2500
Cyanogen Chloride.....	506-77-4	500
Cyanuric Fluoride.....	675-14-9	100
Diacetyl Peroxide (concentration > 70%).....	110-22-5	5000
Diazomethane.....	334-88-3	500
Dibenzoyl Peroxide.....	94-36-0	7500
Diborane.....	19287-45-7	100
Dibutyl Peroxide (Tertiary).....	110-05-4	5000
Dichloro Acetylene.....	7572-29-4	250
Dichlorosilane.....	4109-96-0	2500
Diethylzinc.....	557-20-0	10000
Diisopropyl Peroxydicarbonate.....	105-64-6	7500
Dialuroyl Peroxide.....	105-74-8	7500
Dimethyldichlorosilane.....	75-78-5	1000
Dimethylhydrazine, 1, 1-.....	57-14-7	1000
Dimethylamine, Anhydrous.....	124-40-3	2500
2, 4-Dinitroaniline.....	97-02-9	5000
Ethyl Methyl Ketone Peroxide (also Methyl Ethyl Ketone Peroxide; Concentration > 60%).....	1338-23-4	5000

**Appendix A**  
**Page 2**

<b>Chemical Name</b>	<b>*CAS</b>	<b>**TQ</b>
Ethyl Nitrite.....	109-95-5	5000
Ethylamine.....	75-04-7	7500
Ethylene Fluorohydrin.....	371-62-0	100
Ethylene Oxide.....	75-21-8	5000
Ethyleneimine.....	151-56-4	1000
Fluorine.....	7782-41-4	1000
Formaldehyde (Formalin).....	50-00-0	1000
Furan.....	110-00-9	500
Hexafluoroacetone.....	684-16-2	5000
Hydrochloric Acid, Anhydrous.....	7647-01-0	5000
Hydrofluoric Acid, Anhydrous.....	7664-39-3	1000
Hydrogen Bromide.....	10035-10-6	5000
Hydrogen Chloride.....	7647-01-0	5000
Hydrogen Cyanide, Anhydrous.....	74-90-8	1000
Hydrogen Fluoride.....	7664-39-3	1000
Hydrogen Peroxide (52% by weight or greater).....	7722-84-1	7500
Hydrogen Selenide.....	7783-07-5	150
Hydrogen Sulfide.....	7783-06-4	1500
Hydroxylamine.....	7803-49-8	2500
Iron, Pentacarbonyl.....	13463-40-6	250
Isopropylamine.....	75-31-0	5000
Ketene.....	463-51-4	100
Methylacrylaldehyde.....	78-85-3	1000
Methylacryloyl Chloride.....	920-46-7	150
Methylacryloyloxyethyl Isocyanate.....	30674-80-7	100
Methyl Acrylonitrile.....	126-98-7	250
Methylamine, Anhydrous.....	74-89-5	1000
Methyl Bromide.....	74-83-9	2500
Methyl Chloride.....	74-87-3	15000
Methyl Chloroformate.....	79-22-1	500
Ethyl Ketone Peroxide (concentration > 60%).....	1338-23-4	5000
Methyl Fluoroacetate.....	453-18-9	100
Methyl Fluorosulfate.....	421-20-5	100
Methyl Hydrazine.....	60-34-4	100
Methyl Iodide.....	74-88-4	7500
Methyl Isocyanate.....	624-83-9	250
Methyl Mercaptan.....	74-93-1	5000
Methyl Vinyl Ketone.....	79-84-4	100
Methyltrichlorosilane.....	75-79-6	500
Nickel Carbonyl (Nickel Tetracarbonyl).....	13463-39-3	150
Nitric Acid (94.5% by weight or greater).....	7697-37-2	500
Nitric Oxide.....	10102-43-9	250
Nitroaniline (para Nitroaniline).....	100-01-6	5000
Nitromethane.....	75-52-5	2500
Nitrogen Dioxide.....	10102-44-0	250
Nitrogen Oxides (NO; NO <sub>2</sub> ;N <sub>2</sub> O <sub>4</sub> ;N <sub>2</sub> O <sub>3</sub> ).....	10102-44-0	250
Nitrogen Tetroxide (also called Nitrogen Peroxide).....	10544-72-6	250
Nitrogen Trifluoride.....	7783-54-2	5000
Nitrogen Trioxide.....	10544-73-7	250
Oleum (65% to 80% by weight; also called Fuming Sulfuric Acid).....	8014-94-7	1000
Osmium Tetroxide.....	20816-12-0	100
Oxygen Difluoride (Fluorine Monoxide).....	7783-41-7	100
Ozone.....	10028-15-6	100
Pentaborane.....	19624-22-7	100
Paracetic Acid (concentration > 60% Acetic Acid; also called Peroxyacetic Acid).....	79-21-0	1000
Perchloric Acid (concentration > 60% by weight).....	7601-90-3	5000
Perchloromethyl Mercaptan.....	594-42-3	150

**Appendix A  
Page 3**

<b>Chemical Name</b>	<b>*CAS</b>	<b>**TQ</b>
Perchloryl Fluoride.....	7616-94-6	5000
Peroxyacetic Acid (concentration > 60% acetic acid, also called Peracetic Acid).....	79-21-0	1000
Phosgene (also see Carbonyl Chloride).....	75-44-5	100
Phosphine (Hydrogen Phosphide).....	7803-51-2	100
Phosphorous Oxychloride (also called Phosphoryl Chloride).....	10025-87-3	1000
Phosphorous Trichloride.....	7719-12-2	1000
Phosphoryl Chloride (also called Phosphorous Oxychloride).....	10025-87-3	1000
Propargyl Bromide.....	106-96-7	100
Propyl Nitrate.....	627-3-4	2500
Sarin.....	107-44-8	100
Selenium Hexafluoride.....	7783-79-1	1000
Stibine (Antimony Hydride).....	7803-52-3	500
Sulfur Dioxide (liquid).....	7446-09-5	1000
Sulfur Pentafluoride.....	5714-22-7	250
Sulfur Tetrafluoride.....	7783-60-0	250
Sulfur Trioxide (also called Sulfuric Anhydride).....	7446-11-9	1000
Sulfuric Anhydride (also called Sulfur Trioxide).....	7446-11-9	1000
Tellurium Hexafluoride.....	7783-80-4	250
Tetrafluoroethylene.....	116-14-3	5000
Tetrafluorohydrazine.....	10036-47-2	5000
Tetramethyl Lead.....	75-74-1	1000
Thionyl Chloride.....	7719-09-7	250
Trichloro (chloromethyl) Silane.....	1558-25-4	100
Trichloro (dichlorophenyl) Silane.....	27137-85-5	2500
Trichlorosilane.....	10025-78-2	5000
Trifluorochloroethylene.....	79-38-9	10000
Trimethoxyilane.....	2487-90-3	1500

* <i>Chemical Abstract Service Number.</i>
** <i>Threshold Quantity in pounds (Amount necessary to be covered by this standard).</i>

## Appendix B Owner's Process Safety Management Disclosure

### Project Information

Project Name:	Date:
Project Contract or Bid Number:	Location:
Project Scope:	

### Hazard Information

1. Is this project considered "Process Safety" under OSHA Standard 1910.119? .....	Yes <input type="radio"/>	No <input type="radio"/>
2. If "yes"		
a. Will work be on or adjacent to hazardous processes regulated under OSHA 1910.119? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. Is notification of the potential fire, explosion, or toxic release hazards related to our work and the covered processes is attached.....	Yes <input type="radio"/>	No <input type="radio"/>
c. Are the applicable provisions of your OSHA required Emergency Evacuation Plan attached?.....	Yes <input type="radio"/>	No <input type="radio"/>
d. Are the controls for our employee entrance, presence, and exit in covered process areas attached? .....	Yes <input type="radio"/>	No <input type="radio"/>
3. Asbestos		
a. Was the facility, or specific area where we will be performing work built prior to 1980? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. Does our work area contain any Asbestos Containing Materials (ACM) or PACM Materials as defined in OSHA 1926.1101? .....	Yes <input type="radio"/>	No <input type="radio"/>
c. If "yes", who will be providing Asbestos Abatement Services: .....		
d. Will there be Asbestos Abatement activities in other areas of the facility during the time of our work? .....	Yes <input type="radio"/>	No <input type="radio"/>
4. Other Hazards		
a. Is there a known Arsenic exposure hazard at this facility or in our workplace? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. If "yes" – is explanation attached? .....	Yes <input type="radio"/>	No <input type="radio"/>
c. Is there a know lead exposure hazard at this facility or in our workplace? .....	Yes <input type="radio"/>	No <input type="radio"/>
d. If "yes" is an explanation attached?.....	Yes <input type="radio"/>	No <input type="radio"/>
e. Are there any other Owner, or Owner's Agent identified hazardous materials associated with this project (See listing of OSHA regulated Hazardous Chemicals on the reverse side of this form)? .....	Yes <input type="radio"/>	No <input type="radio"/>
f. If "yes" please provide detail in attachment. ....		
5. Personnel		
a. Who is the individual with whom we interface on process safety, or other safety issues, and to whom we forward notifications of any injury or illness of our employee(s)? .....		
b. The proposed method of evaluating our performance in meeting our obligations under the OSHA Process Safety laws is attached, or has been discussed.....	Yes <input type="radio"/>	No <input type="radio"/>

### Signature

Completed By:	Title:	Date:

# Housekeeping

## Section 4.12

### Purpose

The intent of this policy is to address and identify the general requirements for good housekeeping practices for the areas in which we work. Good housekeeping practices are the foundation to a safe working environment and significantly reduce the number of accidents and injuries to our employees, co-workers, and clients.

### References

OSHA 1926.25, 1910.141

### Responsibilities

Good housekeeping practices are a shared responsibility that requires the participation of all employees. Daily attention to housekeeping is the key to promoting a clean work location that reduces workplace hazards and supports a productive work environment. Management shall allocate time each day to address housekeeping issues unique to their organization. Responsibilities for the successful implementation of this program shall be as follows:

#### *Managers / Supervisors*

Shall address and identify housekeeping hazards and take the necessary measures to assure that all items requiring corrective action are completed in a timely fashion.

#### *Safety Manager*

Shall assist in the development and overall maintenance of the program and conduct periodic reviews, training, as well as inspections, to assure the program is being implemented and enforced.

#### *Employee*

Shall be knowledgeable of good housekeeping practices and be held accountable for the orderliness of their work environment.

### General Requirements

1. Supervisors shall procure and place an adequate amount of trash and or refuse receptacles and or dumpsters in the workplace applicable to the number of employees and the scope of work being performed.
2. All construction, fabrication, supplies, and other related materials shall be neatly stacked and stored in such fashion to prevent tipping, falling, or shifting. These materials shall never be stored adjacent to stairwells, hoistways, shafts, unprotected elevation changes, or locations that present a hazard to the employees or equipment below. These materials shall not be stored or placed in front of access / egress doors, electrical panels, local disconnects, fire extinguishers, and any other equipment that requires immediate accessibility.
3. All stairs, aisleways, and routine paths of travel shall be free from equipment, tools, supplies, and any other materials that may inhibit unobstructed access.
4. All work areas shall be cleaned daily to address slip and trip hazards presented by construction and fabrication materials. Potential trip hazards in the form of rolling stock, such as: conduit, pipe cut-off's, unistrut, welding-rod, rebar, form-ties, and similar materials shall be kept out of the way of foot traffic or disposed of in the proper receptacle.
5. Lumber and dunage shall be removed from the work area and placed in a suitable storage area or construction debris receptacle as applicable.
6. All form lumber shall be free of protruding nails to eliminate the risk of punctures or lacerations. In addition, stacks of form lumber and sheeting shall be banded or otherwise secured to prevent them from becoming airborne when exposed to the elements.

# Housekeeping

## Section 4.12

7. Wherever feasible, all welding lead, extension cords, and temporary wiring shall be routed overhead and suspended by non-conductive means (ex. nylon tie wraps, PVC, etc.) to prevent trip hazards and protect such conductor from physical damage.
8. Welders shall keep all spent welding rods in stub buckets or other suitable containers.
9. All spills of oils, grease, lubricants, and water shall be cleaned up immediately with an absorbent material and disposed of according to local rules and regulations.
10. All lunch and break areas shall be kept in a clean and orderly fashion.

### Training

This program can only be effective if it is communicated to all employees and diligently managed by all disciplines. All employees shall receive initial training on this program upon new hire and periodically thereafter throughout the duration of their employment.

# Exposure Control Plan for Bloodborne Pathogens

## Section 4.13

### Purpose

The Company is committed to providing a safe and healthful work environment for employees. In pursuit of this endeavor, the following Exposure Control Plan (ECP) is provided to eliminate or minimize occupational exposure to bloodborne pathogens.

This ECP includes:

1. Determination of employee exposure;
2. Implementation of various methods of exposure control, including:
  - a. Universal precautions,
  - b. Engineering and work practice controls,
  - c. Personal protective equipment (PPE), and
  - d. Housekeeping
3. Hepatitis B vaccination;
4. Post-exposure evaluation and follow-up;
5. Communication of hazards to employees and training;
6. Recordkeeping; and
7. Procedures for evaluating circumstances surrounding an exposure incident.

### References

OSHA 29 CFR 1910.1030

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall be responsible for the implementation of the ECP. The Safety Manager will maintain, review, and update the ECP at least annually, and whenever necessary to include new or modified tasks and procedures. They shall also assist Managers and Supervisors by auditing the employee's work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understood their responsibilities with respect to proper and safe use of all tool in the work environment.

### Methods of Implementation and Control

#### *Universal Precautions*

All employees will utilize universal precautions.

#### *Exposure Control Plan*

Employees covered by the bloodborne pathogens standard receive an explanation of this ECP during their initial training session. It will also be reviewed in their annual refresher training. All employees have an opportunity to review this plan at any time during their work shifts by contacting their Supervisor. If requested, the company will provide an employee with a copy of the ECP free of charge and within 15 days of the request.

The Safety Manager is responsible for reviewing and updating the ECP annually or more frequently if necessary to reflect any new or modified tasks and procedures that affect occupational exposure and to reflect new or revised employee positions with occupational exposure.

# Exposure Control Plan for Bloodborne Pathogens

## Section 4.13

### *Engineering and Work Practice Controls*

Engineering and work practice controls will be used to prevent or minimize exposure to bloodborne pathogens. When the contracted scope of work activities entail working in operating medical facilities, the requirements of Section 4.14 – Infection Control Plan shall be followed. The specific engineering controls and work practice controls used are listed below:

### *Personal Protective Equipment (PPE)*

PPE is provided to our employees at no cost to them. Training is provided by Safety Manager in the use of the appropriate PPE for the tasks or procedures employees will perform.

The types of PPE available to employees are as follows: gloves, eye protection, a biohazard kit, and an adequate breathing barrier.

### *Housekeeping*

Regulated waste is placed in containers that are closable, constructed to contain all contents and prevent leakage, appropriately labeled or color-coded (see Labels section), and closed prior to removal to prevent spillage or protrusion of contents during handling.

1. Contaminated sharps are discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak proof on sides and bottoms, and labeled or color-coded appropriately. Sharps disposal containers are inspected and maintained or replaced by a designated employee whenever necessary to prevent overfilling.

Bins and pails (e.g., wash or emesis basins) are cleaned and decontaminated as soon as feasible after visible contamination.

Broken glassware that may be contaminated is picked up using mechanical means, such as a brush and dust pan.

### *Labels*

The Supervisor will ensure warning labels are affixed or red bags are used as required if regulated waste or contaminated equipment is brought into the facility. Employees are to notify the Supervisor if they discover regulated waste containers, refrigerators containing blood or OPIM, contaminated equipment, etc., without proper labels.

### **Hepatitis B Vaccination**

The Supervisor will ensure that proper instruction and training is provided to employees on hepatitis B vaccinations, addressing the safety, benefits, efficacy, methods of administration, and availability.

The hepatitis B vaccination series is available at no cost after training and within 10 days of initial assignment to employees identified in the exposure determination section of this plan. Vaccination is encouraged unless:

1. Documentation exists that the employee has previously received the series,
2. Antibody testing reveals that the employee is immune, or
3. Medical evaluation shows that vaccination is contraindicated.

However, if an employee chooses to decline vaccination, the employee must sign a Virus Vaccination Declination form, listed as *Appendix A* of this policy. Employees who decline may request and obtain the vaccination at a later date at no cost.

Following hepatitis B vaccinations, the health care professional's written opinion will be limited to whether the employee requires the hepatitis vaccine, and whether the vaccine was administered.

# Exposure Control Plan for Bloodborne Pathogens

## Section 4.13

### Post-exposure Evaluation and Follow-Up

Should an exposure incident occur, contact the supervisor immediately.

An immediately available confidential medical evaluation and follow-up will be conducted by a designated medical provider. Following the initial first aid (clean the wound, flush eyes or other mucous membranes, etc.), the following activities will be performed:

1. Document the routes of exposure and how the exposure occurred.
2. Identify and document the source individual (unless we can establish that identification is infeasible or prohibited by state or local law).
3. Obtain consent and make arrangements to have the source individual tested as soon as possible to determine HIV, HCV, and HBV infectivity; document that the source individual's test results were conveyed to the employee's health care provider.
4. If the source individual is already known to be HIV, HCV and / or HBV positive, new testing need not be performed.
5. Assure that the exposed employee is provided with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual (e.g., laws protecting confidentiality).
6. After obtaining consent, collect exposed employee's blood as soon as feasible after exposure incident, and test blood for HBV and HIV serological status.
7. If the employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days; if the exposed employee elects to have the baseline sample tested during this waiting period, perform testing as soon as feasible.

### *Administration of Post-Exposure Evaluation and Follow-up*

The Safety Manager ensures that health care professional(s) responsible for employee's hepatitis B vaccination and post-exposure evaluation and follow-up are given a copy of OSHA's Bloodborne Pathogens Standard (29 CFR 1910.1030).

The Safety Manager ensures that the health care professional evaluating an employee after an exposure incident receives the following:

1. A copy of 29 CFR 1910.1030,
2. A description of the employee's job duties relevant to the exposure incident,
3. Route(s) of exposure, Circumstances of exposure,
4. If possible, results of the source individual blood test, and
5. Relevant employee medical records, including vaccination status.

The Safety Manager provides the employee with a copy of the evaluating health care professional's written opinion within 15 days after completion of the evaluation.

### *Procedures for Evaluating the Circumstances Surrounding an Exposure Incident*

The Safety Manager will review the circumstances of all exposure incidents to determine that revisions need to be made. If the determination is made, the Safety Manager will ensure that appropriate changes are made to this ECP. Changes include:

1. an evaluation of safer devices,
2. adding employees to the exposure determination list

# Exposure Control Plan for Bloodborne Pathogens

## Section 4.13

### Recordkeeping

#### *Training Records*

Training records are completed for each employee upon completion of training. These documents will be kept for at least three years.

The training records include:

1. The dates of the training sessions,
2. The contents or a summary of the training sessions,
3. The names and qualifications of persons conducting the training, and
4. The names and job titles of all persons attending the training sessions.

Employee training records are provided upon request to the employee or the employee's authorized representative within 15 working days. Such requests should be addressed to Safety Manager.

#### *Medical Records*

Medical records are maintained for each employee with occupational exposure in accordance with 29 CFR 1910.1020, "Access to Employee Exposure and Medical Records."

The Safety Manager is responsible for maintenance of the required medical records. These confidential records are kept for at least the duration of employment plus 30 years.

Employee medical records are provided upon request of the employee or to anyone having written consent of the employee within 15 working days. Such requests should be sent to the Safety Manager.

### *OSHA Recordkeeping*

An exposure incident is evaluated to determine if the case meets OSHA's Recordkeeping Requirements (29 CFR 1904). This determination and the recording activities are done by The Safety Manager.

### **Employee Training**

All employees who have occupational exposure to bloodborne pathogens receive training conducted by Safety Manager.

All employees who have occupational exposure to bloodborne pathogens receive training on the epidemiology, symptoms, and transmission of bloodborne pathogen diseases. In addition, the training program covers, at a minimum, the following elements:

1. A copy and explanation of the standard;
2. An explanation of our ECP and how to obtain a copy;
3. An explanation of methods to recognize tasks and other activities that may involve exposure to blood and OPIM, including what constitutes an exposure incident;
4. 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;
5. An explanation of the types, uses, location, removal, handling, decontamination, and disposal of PPE;
6. An explanation of the basis for PPE selection;
7. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine will be offered free of charge;

# Exposure Control Plan for Bloodborne Pathogens

## Section 4.13

8. Information on the appropriate actions to take and persons to contact in an emergency involving blood or OPIM;
9. 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;
10. Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;
11. An explanation of the signs and labels and/or color coding required by the standard and used at this facility; and
12. An opportunity for interactive questions and answers with the person conducting the training session.

### Appendices

Appendix A - Hepatitis B Vaccine Declination

**Appendix A**  
**Hepatitis B Virus Vaccination 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 B vaccine, at no charge to myself. However, I declined the 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 wish to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to myself.

\_\_\_\_\_  
*Employee Signature*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Employee Name*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Witness Signature*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Witness Name*

\_\_\_\_\_  
*Date*

*This form is required by 29 CFR 1910.1030, Appendix A*

# Confined Spaces

## Section 4.14

### Purpose

To establish and implement requirements for preventing employee exposure to dangerous air contamination, oxygen deficiency, or oxygen enrichment confined spaces.

### Reference

OSHA 1926.21, 1910.146

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for confined space identification, establish PPE criteria, evaluate program effectiveness, support rescue activities, and provide entry and rescue operations training in support of this program.

#### *Entry Supervisor*

Shall know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure. 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. Terminates the entry and cancels the permit. Verifies that rescue services are available and that the means for summoning them are operable. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations. 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.

#### *Entry Attendant*

Shall know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure. Is aware of possible behavioral effects of hazard exposure in authorized entrants. Continuously maintains an accurate count of authorized entrants in the permit space. Remains outside the permit space during entry operations until relieved by another attendant. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate. Monitors activities 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 the attendant detects a prohibited condition,
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant, or
3. If the attendant detects a situation outside the space that could endanger the authorized entrants.

Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape. Ensures unauthorized persons do not enter the Confined Space. Performs non-entry rescues. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

#### *Authorized Entrant*

Shall know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure. Properly use the equipment required for safe entry. Communicate with the attendant to ensure they can monitor entrant's

# Confined Spaces

## Section 4.14

status and to enable the attendant to alert entrants of the need to evacuate the space. Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or the entrant detects a prohibited condition.

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. The entrant recognizes 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.

### Definitions

#### *Attendant*

An individual stationed outside one or more permit spaces who monitors the authorized entrants and performs all attendant's duties assigned in the employer's permit space program.

#### *Authorized Entrant*

An employee who is authorized by the employer to enter a permit space.

#### *Confined Space*

A space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.) and
3. Is not designed for continuous employee occupancy.

#### *Emergency*

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

#### *Engulfment*

The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance.

#### *Entry Permit*

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

#### *Entry Supervisor*

The person 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.

#### *Hazardous Atmosphere*

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

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
2. Airborne combustible dust at a concentration that meets or exceeds its LFL;
3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent; or
4. Atmospheric concentration of any substance for which a dose could result in an employee exposure to be in excess of its dose or permissible exposure limit.

# Confined Spaces

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### *Hot Work Permit*

The employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

### *Non-permit Confined Space*

A confined space that does not contain any hazard capable of causing death or serious physical harm.

### *Oxygen Deficient Atmosphere*

An atmosphere containing less than 19.5 percent oxygen by volume.

### *Oxygen Enriched Atmosphere*

An atmosphere containing more than 23.5 percent oxygen by volume.

### *Permit-Required Confined*

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.

### *Rescue Service*

The personnel designated to rescue employees from permit spaces.

### *Testing*

The process by which the hazards that may confront entrants of a permit space are identified and evaluated.

## **Procedures**

### *Identification of Confined Spaces*

The workplace will be evaluated for Confined Spaces by the Superintendent and Safety Supervisor as following:

1. At the beginning of new projects, and
2. When operations expand into an area previously not surveyed.

Confined Spaces identified during evaluation should be logged on the Confined Space Identification Log, listed as *Appendix C* of this section.

Confined Spaces that employees could enter should be identified by a sign reading "DANGER - PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER." This sign must be permanently posted at potential entry points to the space.

Spaces that are not to be entered must be adequately marked and their entrances blocked.

### *Lockout / Tagout*

Before any confined space is entered, it needs to be evaluated for potential energy source(s) that may cause injuries to any authorized entrant. If potential energy source(s) exist, the appropriate control(s) laid out in Section 11.4, Lockout / Tagout, of this manual shall be implemented.

### *General Requirements*

The following requirements apply for entry into Confined Spaces:

Conditions making removal of an entrance cover unsafe must be eliminated before the entrance cover is removed.

Where entrance covers are removed, entrances must be guarded to prevent an accidental fall of employee into the space, and to protect the employee from foreign objects entering the space.

# Confined Spaces

## Section 4.14

Before an employee enters a Confined Space, the atmosphere of the space must be tested with a calibrated, direct - reading instrument, and documented on the Entry Permit, for the following conditions:

1. Oxygen Content (between 19.5% and 22.0%)
2. Flammable gases and vapors (less than 10% of the LFL)
3. Potentially toxic air contaminants (not to exceed the PEL)

The space must be free of a hazardous atmosphere when an entrant is inside.

Continuous air ventilation must be used, as follows:

1. An entrant is not to enter the Confined Space until ventilation has eliminated the Hazard.
2. Mechanical ventilation is to be directed to the work areas while entrant(s) are working.
3. Mechanical ventilation must continue until the last entrant leaves the area.
4. Sources for ventilation make-up air must be free of hazardous substances.

The atmosphere in the work area must be continually monitored to ensure that the air ventilation is preventing the accumulation of a hazardous substance.

If during an entry, a hazardous substance is detected:

1. Every entrant must leave the space immediately.
2. The space must be evaluated to determine how the atmosphere developed.
3. Measures must be taken to protect entrants during future entry.

Safety equipment needed to protect entrants in a Confined Space will be properly used and maintained. Employees must be trained in its proper use including but not limited to:

1. Testing and monitoring equipment
2. Ventilation equipment
3. Communication equipment
4. Respirator / SCBA
5. PPE
6. Lighting
7. Barriers and shields
8. Ladders and scaffolds (safety ingress and egress equipment)
9. Rescue and emergency equipment

At least one Entry Attendant must be posted outside each entry of the Permitted Confined Space(s) where entrants are working.

Entry Attendant(s) are responsible for one permit space.

A pre-entry Safety Meeting shall be performed by the entry supervisor, to include:

1. Instruction on all requirements, procedures, and other concerns with all entrants and attendants involved.
2. Instructions as to when the confined space(s) is ready for entry and discuss all requirements for the entry.
3. Coordination of entry operations when employees from more than one company are working simultaneously in the confined space, so one company's work does not endanger the employees of another company.

# Confined Spaces

## Section 4.14

A Confined Space Decision Flow Chart, listed as *Appendix F* of this section, is included with entry permit documentation forms to aid in evaluating possible confined space entry and work.

### *Pre-Entry*

The Entry Supervisor is to prepare a Confined Space Entry Permit, listed as *Appendix B* of this section. The permit requires the following:

1. Signature of the Entry Supervisor.
2. Posting Permit and entry log at the entrance to the Confined Space.
3. Confirmation of the pre-entry preparations must be completed by each Authorized Entrants, each Authorized Entrant will initial by their name on the Entry Log:
  - a. Confirming preparations are complete, and
  - b. Evacuation signal is known and understood.
4. Duration of permit cannot exceed:
  - a. The time required to complete the assigned task, or
  - b. The length of the shift.
5. Termination of work in a Confined Space and cancellation of the Permit must occur when:
  - a. Task is complete, or
  - b. Conditions not allowed on the Permit arise.
6. Retrieval Systems must be used for **non-entry rescues** whenever an authorized entrant is to work in a Confined Space.
  - a. Authorized Entrants must use a chest or full body harness with retrieval line attached to the "D" ring at the center of the entrant's back.

- b. Wristlets may be used if the chest or body harness is not feasible or creates a greater hazard.
- c. The other end of the retrieval line must be attached to a mechanical retrieval device or fixed point outside the Confined Space.
- d. Mechanical retrieval devices will be used for retrieval from vertical type spaces more than (5) five feet deep.

7. Rescue & Emergency Personnel who enter Confined Spaces must meet the following requirements:
  - a. Shall be trained to use PPE and rescue equipment.
  - b. Shall have received training on assigned rescue duties and for authorized entrance.
  - c. Participates in annual or more frequently held simulated rescue operations (*Must be able to demonstrate proficiency*).
  - d. Trained and certified in basic 1st Aid and CPR (Including Bloodborne Pathogens).

### *Confined Space Entry Permit*

The following conditions must be recorded when completing the Confined Space Entry Permit:

1. Purpose of entry
2. Date & authorized duration
3. A method to list Authorized Entrants' names and determine which Entrant is inside the space at any given time.
4. Name(s) of the current Entry Attendant(s).
5. Name of current Entry Supervisor.

# Confined Spaces

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6. Known hazards of the Confined Space to be entered.
7. Measures to isolate the Confined Space and to eliminate or control hazards before entry(s).
8. Acceptable entry conditions
9. Results of initial and periodic tests with tester's signature and time of reading
10. Rescue and emergency services including equipment and phone numbers
11. Communication procedures for Authorized Entrants and Hole Watchers to maintain continuous communication while in the Confined Space
12. Equipment to be provided for a safe entry:
  - a. PPE
  - b. Communication equipment
  - c. Alarm systems
  - d. Rescue equipment
13. Other information that may be necessary:
  - a. MSDS's for each product, material, gas, vapor or substance known to be in, or that may be introduced during entry
  - b. Anticipated activities to be conducted in the vicinity of the Confined Space and their potential for effecting conditions of the entry
14. List additional permits required or issued to authorize work in the Confined Space.
  - a. Examples –
    - i. Excavation
    - ii. Hot Work for:

1. Welding & cutting
2. Using electric tools or devices

*Entry Permits – The Confined Space Entry Permit must be used for all confined space entries*

1. Permit Initiation – The permit must be:
  - a. Issued at the beginning of each shift or every 12 hours, whichever comes first?
  - b. Signed by the entry supervisor and authorized entrants before entering a permit required confined space.
2. Permit Re-Issue – The space must be re-tested and the permit re-issued if:
  - a. A leak occurs in the work area.
  - b. A fire occurs in the work area.
  - c. Entry conditions change.
  - d. If the work does not start within 30 minutes of issuing the permit, the atmosphere must be re-tested and recorded on the permit.
  - e. At the end of the job or the end of the shift.

### Sub-Contractors Procedures

The following guidelines should be implemented for Sub-Contractors performing Confined Space entry work.

1. Identification of Confined Spaces is to be documented by providing a copy of the Confined Space Identification Log, listed as *Appendix D* of this section.

The Safety Supervisor will:

1. Provide the Sub-Contractors with a Confined Space Hazard Identification Worksheet with the Hazard Communication information package.

# Confined Spaces

## Section 4.14

2. Inform Sub-Contractors that entry is allowed only through compliance with a permit entry program.
3. Inform the Sub-Contractor of information known about the Confined Spaces, including the hazards identified and past experiences.
4. Inform the Sub-Contractors of precautions or procedures that have been implemented for the protection of employees in or near the Confined Spaces.

### *Entry Coordination*

The Superintendent will coordinate entry operations with the Sub-Contractor's employee(s) who will be working in the same Confined Space. The Sub-Contractors will inform the Superintendent of activities performed near an entry location.

### *Sub-Contractors Program / Procedures Review*

Sub-Contractors must provide the Safety Supervisor with a copy of their Confined Space Entry Program. The entry program must be reviewed and accepted before any entry can be made.

### **Recordkeeping**

Records of activities associated with Confined Space entry will be maintained for at least **one year** from the last date for that activity. The Safety Manager / Coordinator will maintain the following records and documentation:

1. Training Records
2. Safety Drills
3. Inspections or Surveys
4. Tests or Monitoring Records
5. Monitor Calibration Records
6. Maintenance of PPE, Safety Equipment and Devices

### 7. Entry Permits

Exposure incidents occur when monitoring indicates a toxic substance. The Project Safety Supervisor will maintain employee exposure records for the duration of the project. At the completion of a project, these employee exposure records will be forwarded to the Company's operating location for retention **(From the last date of employment plus 30 years.)**

### **Training**

Training shall be provided to those employees working in or controlling work in Confined Spaces, including Qualified Rescuers. This training requires the following:

1. Understanding, of roles and responsibilities
2. Knowledge of anticipated hazards and control methods to mitigate those hazards, and
3. Skills necessary to perform their job safely.

The training must be documented and include the following:

1. Subject
2. Employee's name,
3. Signature of the trainer, and
4. Dates of training.

### *Frequency of Training*

Training shall be provided to each affected employee:

1. Before the employee is first assigned duties under this section.
2. Before there is a change in assigned duties.
3. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained.

# Confined Spaces

## Section 4.14

4. Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

### Appendices

Appendix A – Confined Space Entry Definition

Appendix B – Confined Space Entry Permit

Appendix C – Confined Space Entry Log

Appendix D – Confined Space Identification  
Log

Appendix E – Decision Tree for Confined  
Space Entry

Appendix F – Confined Space Decision Flow  
Chart

## Appendix A Confined Space Entry Definition

CONFINED SPACE IS AN ENCLOSED SPACE WHICH:

Is large enough and so configured that an employee can bodily enter and perform assigned work;  
Has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, storage bins, hoppers, vaults, pits, and dike areas);  
Is not designed for continuous employee occupancy; and,  
Has one or more of the following characteristics:

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

### SAFETY PLANNING MEETING

PLANNING	DISCUSSION	
<b>PLAN OVERALL PROJECT</b>	<b>MINIMUM REQUIREMENTS:</b> Work to be performed Identify ALL hazards Secure Area (post and flag) Lockout - Tagout - Try Out Lines Broken / Capped / Blanked Purge - flush and vent Ventilation Emergency Rescue Procedures Gas testing - Continuous Breathing Apparatus (SCBA or Air-Line Respirators) Emergency Oxygen Constant Communications with Entry Personnel <b>SAFETY STANDBY PERSON (ATTENDANT) REQUIRED FOR ALL 'PERMIT REQUIRED' CONFINED SPACE WORK</b>	<b>DETERMINE OTHER REQUIREMENTS:</b> Responsibilities Fire Extinguishers Review ALL SJP's Lighting (Explosion-proof) Ground Fault Circuit Interrupters/Low Voltage Non-Spark Producing Tools Air Purifying Requirements Protective Clothing Head / Eye / Hearing Protection Retrieval Equipment Type of Instruments Used Qualified Gas Tester Annual Employee Training Burning and Welding Permit required in designated High Fire Hazard Areas
<b>PLAN FOR EMERGENCY</b>	<b>MINIMUM REQUIREMENTS:</b> Designate a secure area (post and flag) Emergency Medical / Injury Procedures Emergency Escape Procedures Emergency Fire Procedures	<b>OTHER REQUIREMENTS:</b> Emergency Equipment: Fire Extinguishers, Protective Clothing, Explosion-proof Lighting, Ground Fault Interrupters, Air Purifying Respirators (Dust/Mist/Chemical), Ventilation, Escape Air Capsules, Work Type Breathing Apparatus with Escape Air, etc.
<b>PLAN FOR RESCUE *</b>	<b>MINIMUM REQUIREMENTS:</b> (Must be available on Job / Work Site Prior to Entry) Effective Rescue Procedures Breathing Apparatus - SCBA Resuscitator - Inhalator Full Body Harness with "D" Ring Trainer Observer (Attendant) * DO NOT ENTER AN EXPLOSIVE OR OXYGEN ENRICHED ATMOSPHERE UNLESS RESCUE IS REQUIRED.	<b>OTHER REQUIREMENTS:</b> Tripod Emergency Retrieval Unit Lifelines, any appropriate Retrieval Equipment Stretcher, Stokes Basket, Blankets, etc.
<b>PLAN FOR GAS TESTS</b>	<b>MINIMUM TESTS - REQUIRED</b> Confined Space Entry: (CONTINUOUS MONITORING**) Oxygen Deficiency - Minimum 19.5% ** Oxygen Enrichment - Maximum 22% ** Combustibles - Maximum 10% LEL ** Toxic - (CO Gas 25 PPM PEL) Complete Entry Permit and Post on the Job / Work Site <b>DETERMINE:</b> Need to Test for Other Gases. <b>REMEMBER:</b> ALL CONFINED SPACES REQUIRE CONTINUOUS MONITORING. <b>REMEMBER:</b> ALL instruments used for testing must be field calibrated once each day or prior to each use whichever is least frequent, and bench calibrated at least once each month. <b>REMEMBER:</b> Even with continuous monitoring you must take readings from the instrument and RECORD the results on the PERMIT AT LEAST ONCE EVERY TWO HOURS. <b>NOTE:</b> After the job has been completed, the ENTRY PERMIT(S) MUST be kept on file for a minimum of 1 year and the pink copy to the Safety Office.	
<b>REMEMBER</b>		
Planning meetings will vary according to size and scope of project. Meetings must be held with ALL affected personnel prior to starting work. Safe entry must be determined for each Confined Space Entry project by considering physical conditions and activities that could occur during work. For further assistance, refer to the Company "Confined Space Entry Procedures, Section 4.7."		



## Appendix B Confined Space Entry Permit Page 2

### Confined Space is an Enclosed Space Which:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, storage bins, hoppers, vaults, pits, and dike areas);
- Is not designed for continuous employee occupancy; and,
- Has one or more of the following characteristics:
  - Contains or has known potential to contain a hazardous atmosphere;
  - Contains a material with the potential to contain a hazardous atmosphere;
  - Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section; or,
  - Contains any other recognized serious safety or health hazard.

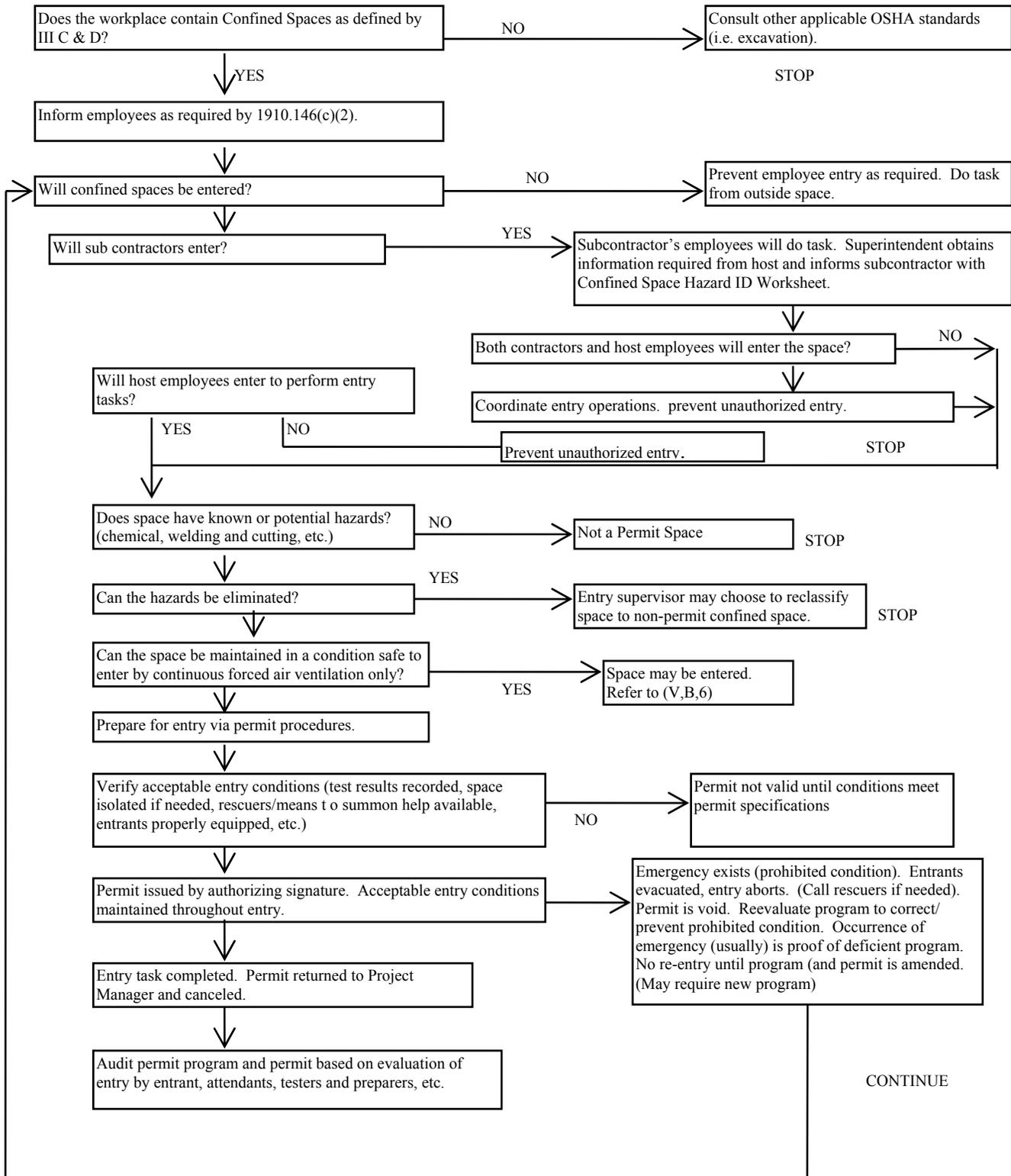
### Safety Planning Meeting

PLANNING	DISCUSSION
PLAN OVERALL PROJECT	MINIMUM REQUIREMENTS: <ul style="list-style-type: none"> <li>• Work to be performed</li> <li>• Identify ALL hazards</li> <li>• Secure Area (post and flag)</li> <li>• Lockout - Tagout - Try Out</li> <li>• Lines Broken / Capped / Blanked</li> <li>• Purge - flush and vent</li> <li>• Ventilation</li> <li>• Emergency</li> <li>• Rescue Procedures</li> <li>• Gas testing - Continuous</li> <li>• Breathing Apparatus (SCBA or Air-Line Respirators)</li> <li>• Emergency Oxygen</li> <li>• Constant Communications with Entry Personnel</li> </ul> SAFETY STANDBY PERSON (ATTENDANT) REQUIRED FOR ALL 'PERMIT REQUIRED' CONFINED SPACE WORK
PLAN FOR EMERGENCY	DETERMINE OTHER REQUIREMENTS: <ul style="list-style-type: none"> <li>• Responsibilities</li> <li>• Fire Extinguishers</li> <li>• Review ALL SJP's</li> <li>• Lighting (Explosion-proof)</li> <li>• Ground Fault Circuit Interrupters/Low Voltage</li> <li>• Non-Spark Producing Tools</li> <li>• Air Purifying Requirements</li> <li>• Protective Clothing</li> <li>• Head / Eye / Hearing Protection</li> <li>• Retrieval Equipment</li> <li>• Type of Instruments Used</li> <li>• Qualified Gas Tester</li> <li>• Annual Employee Training</li> <li>• Burning and Welding Permit required in designated High Fire Hazard Areas</li> </ul>
PLAN FOR RESCUE *	MINIMUM REQUIREMENTS: (Must be available on Job / Work Site Prior to Entry) <ul style="list-style-type: none"> <li>• Designate a secure area (post and flag)</li> <li>• Emergency Medical / Injury Procedures</li> <li>• Emergency Escape Procedures</li> <li>• Emergency Fire Procedures</li> </ul> OTHER REQUIREMENTS: <ul style="list-style-type: none"> <li>• Emergency Equipment: Fire Extinguishers, Protective Clothing, Explosion-proof Lighting, Ground Fault Interrupters, Air Purifying Respirators (Dust/Mist/Chemical), Ventilation, Escape Air Capsules, Work Type Breathing Apparatus with Escape Air, etc.</li> <li>• Tripod Emergency Retrieval Unit</li> <li>• Lifelines, any appropriate Retrieval Equipment</li> <li>• Stretcher, Stokes Basket, Blankets, etc.</li> </ul> * DO NOT ENTER AN EXPLOSIVE OR OXYGEN ENRICHED ATMOSPHERE UNLESS RESCUE IS REQUIRED.
PLAN FOR GAS TESTS	MINIMUM TESTS - REQUIRED <ul style="list-style-type: none"> <li>• Confined Space Entry: (CONTINUOUS MONITORING**)</li> <li>• Oxygen Deficiency - Minimum 19.5% **</li> <li>• Oxygen Enrichment - Maximum 22% **</li> <li>• Combustibles - Maximum 10% LEL **</li> <li>• Toxic - (CO Gas 25 PPM PEL)</li> <li>• Complete Entry Permit and Post on the Job / Work Site</li> </ul> DETERMINE: Need to Test for Other Gases. REMEMBER: ALL CONFINED SPACES REQUIRE CONTINUOUS MONITORING. REMEMBER: ALL instruments used for testing must be field calibrated once each day or prior to each use whichever is least frequent, and bench calibrated at least once each month. REMEMBER: Even with continuous monitoring you must take readings from the instrument and RECORD the results on the PERMIT AT LEAST ONCE EVERY TWO HOURS. NOTE: After the job has been completed, the ENTRY PERMIT (S) MUST be kept on file for a minimum of 1 year and the pink copy to the Safety Office.
<b>REMEMBER</b>	
Planning meetings will vary according to size and scope of project. Meetings must be held with ALL affected personnel prior to starting work. Safe entry must be determined for each Confined Space Entry project by considering physical conditions and activities that could occur during work. For further assistance, refer to the Company "Confined Space Entry Procedures, Section 4.7."	



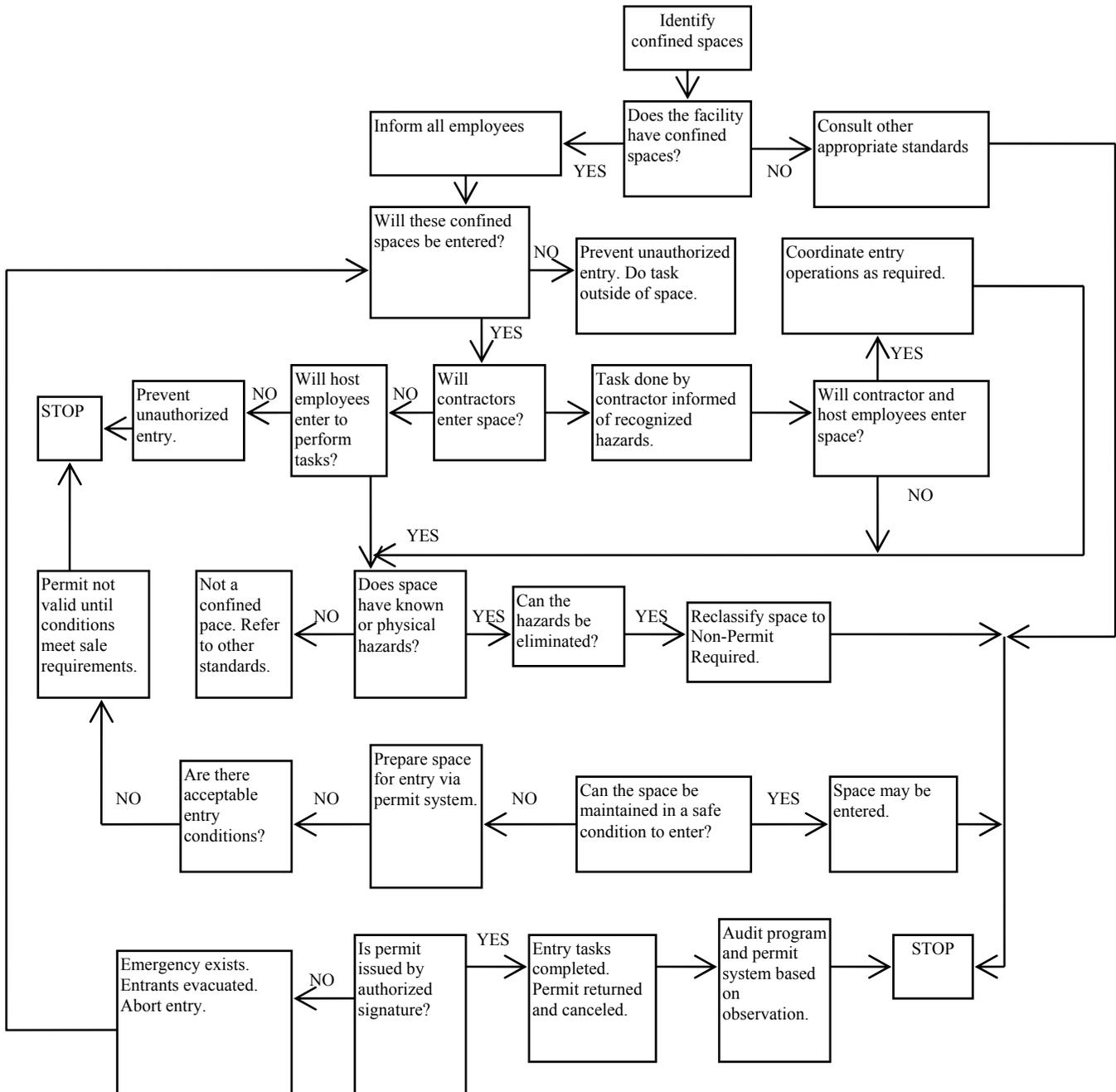


## Appendix E Decision Tree for Confined Space Entry



Spaces may have to be evacuated and re-evaluated if hazards arise during entry.

## Appendix F Confined Space Decision Flow Chart



# Confined Space Entry for Construction In Minnesota

## Section 4.15

### Reference

MN Department of Labor & Industry Chapter  
182-5207.0300

### Procedures

These procedures are meant for the use in the Construction field regulated by the Minnesota Occupational Safety and Health Administration's statutes. In the event that an owner has a confined space program in place, the owner's requirements supercede the requirements of this procedure.

Contact your supervisor before entering any tank, vessel, etc.

The oxygen concentration, the presence of toxic and explosive gases and vapors shall be tested before entry into closed vessels, tanks, pits, etc., is permitted. Entry shall not be permitted until the atmospheric test for anticipated hazards is conducted and the space is determined safe for entry.

Before any confined space is entered, it needs to be evaluated for potential energy source(s) that may cause injuries to any authorized entrant. If potential energy source(s) exist, the appropriate control(s) laid out in Section 11.4, entitled Lockout / Tagout shall be implemented.

Lifelines and safety harness shall be worn by all entrants entering confined space(s), a person shall be stationed outside in a position to handle the line and to summon assistance in case of emergency.

All ports available will be opened to provide air circulation.

Self-contained air or oxygen supply masks shall be readily available in case of emergency.

Work shall not be done on equipment under conditions where an injury would result if a valve were unexpectedly opened or closed unless the valve(s) have been locked in a safe position and tagged with signature of repairperson.

If an employee in the tank loses consciousness, do not attempt rescue unless you have received confined space rescue training and you are wearing a self-contained breathing apparatus (SCBA). Do not enter until you are protected with the air pack, your own lifeline and an attendant.

If you have any questions or concerns, PLEASE CONTACT YOUR SUPERVISOR.

### Entry and Work within Confined Spaces

#### Class I-A

Confined spaces where an atmosphere with dangerous air contamination, oxygen deficiency, or oxygen enrichment is unlikely to develop.

1. Employers whose operations require workers to perform routine repetitive entry into low hazard chambers such as boilers, vaults, vessels, tanks, bins, and vats, where no risk of engulfment can exist, and where the atmosphere cannot develop a dangerous air contaminant or oxygen enrichment, and where all known sources or hazard are positively controlled, may issue an annual permit for this type of entry instead of separate permits for each space, if established entry practices and procedures are in effect as outlined below. The employer may, at its discretion, allow entry by one or more workers without a standby person, when work under the following conditions is performed.
  - a. Establish specific entry practices and procedures that must be followed for entry by annual permit before any worker may be authorized to make an entry.
  - b. Train workers in the practices and procedures required for such entries.
  - c. Ensure that one or more of the following requirements are met:
    - i. The space has been ventilated before entry using a mechanically powered ventilator for not less than

# Confined Space Entry for Construction In Minnesota

## Section 4.15

- what is specified in the ventilation nomograph prepared for that ventilator, and that ventilation continues throughout the entry.
- ii. All areas of the confined space are continuously and effectively ventilated; such ventilation shall provide positive ventilation of clean air at a rate of at least 200 cubic feet per minute per occupant, or in confined spaces larger than 2000 cubic feet, 6 air changes of the confined space volume per hour; or
  - iii. There is no effective ventilation but appropriate continuous oxygen monitoring is performed to assure that permit conditions are maintained.
  - d. Revoke the permit whenever any tests performed during confined space occupancy shows deviation from acceptable conditions to a hazardous condition. In these circumstances, entry may be made only by an entry procedure as outlined for Class II or Class III spaces.

### *Class I-B*

- 2. Employers whose operations require workers to perform routine repetitive entry into confined spaces where entry permits are required and are unlikely to develop a dangerous air contaminant, oxygen deficiency, or oxygen enrichment and have no potential for an engulfment condition, may issue an annual permit for this type of entry instead of separate permits for each space if established entry practices and procedures are in effect as outlined below. The employer may at its discretion, allow entry by one or more workers without a standby person when work under the following conditions is performed.
- a. Establish specific entry practices and procedures that must be followed for entry by annual permit before any worker may be authorized to make an entry.
  - b. Train workers in the practices and procedures required for such entries.
  - c. Assure that whenever entry into a confined space is to be made, workers test the atmosphere before entry using an appropriate direct reading instrument (or other device capable of quantitatively identifying anticipated contaminants) with a remote sampling probe, testing for the following conditions and in the following order: oxygen concentration, combustible gas, and suspected toxic material, if any. While occupied, additional continuous monitoring for these gases or vapors shall be done during the entry period to assure that a potentially dangerous atmosphere does not develop in the confined space.
  - d. Assure that continuous and effective, positive ventilation, at a minimum rate of 200 cubic feet per minute of clean air per occupant or, in confined spaces larger than 2000 cubic feet, and exchange rate of six air changes of the confined space volume per hour.
  - e. Revoke the permit whenever any tests performed during confined space occupancy shows deviation from acceptable conditions to a hazardous condition. In these circumstances, entry may be made only by an entry procedure as outlined for Class II or Class III spaces.

### *Class II*

Confined Spaces where an atmosphere free of dangerous air contamination, oxygen deficiency, or oxygen enrichment has been verified.

# Confined Space Entry for Construction In Minnesota

## Section 4.15

1. At least one person shall stand by on the outside of the confined space ready to give assistance in case of emergency.
2. Visual, voice, or signal line communications shall be maintained between all individuals in the confined space and the standby person.
3. An approved safety harness with an attached line shall be used where practical and feasible. The free end of the line shall be secured outside the entry opening. The line shall be at least 2000 pounds tested.
4. The standby person shall not enter the confined space without the appropriate training and alerting an emergency response team such as the fire department or any trained rescue workers of the intent to enter the confined space. Entry shall only occur after proper tests have been performed to show that a dangerous air contaminant, oxygen deficiency, or oxygen enrichment does not exist or the standby person is protected as prescribed in Class III, items C and D sub-item 1.
3. An approved safety harness with an attached line must be used. The free end of the line shall be secured outside the entry opening. The line shall be at least 2000 pounds tested.
4. At least one person shall stand by on the outside of the confined space ready to give assistance in case of emergency.
  - a. The standby person shall have appropriate, approved, respiratory protective equipment, including an independent source or breathing air and is available for immediate use.
  - b. A standby person protected as prescribed by items C and D may enter the confined space, but only in case of emergency and only after donning the required PPE and alerting an emergency response team such as the fire department or other trained rescue workers of their intention to enter the confined space.
  - c. Visual, voice, or signal line communications shall be maintained between all individuals in the confined space and the standby person.

### *Class III*

Confined Spaces where an atmosphere free of dangerous air contamination, oxygen deficiency, or oxygen enrichment cannot be verified. The requirements of this part apply to entry into and work within a confined space whenever an atmosphere free of dangerous air contamination, oxygen deficiency, or oxygen enrichment cannot be verified, or whenever due to an emergency, dangerous air contamination, oxygen deficiency, or oxygen enrichment cannot be prevented.

1. Tanks, vessels, or other confined spaces with side and top openings shall be entered from side openings when practicable. For the purposes of this part, side openings are those within 42 inches of the bottom.
2. Appropriate, approved respiratory protective equipment as laid out in Section 5.2, entitled Respiratory Protection, shall be provided and worn.
5. When entry must be made through a top opening, the following requirements also apply.
  - a. The safety harness shall be of the type that suspends a person in an upright position.
  - b. An approved hoisting device or other effective means shall be provided for lifting workers out of the space.
6. Work involving the use of flame, arc, spark, or other source of ignition is prohibited within a confined space (or any adjacent space having common walls, floor, or ceiling with the confined space) that contains or is likely to develop, dangerous air contamination due to flammable or explosive substance.

# Confined Space Entry for Construction In Minnesota

## Section 4.15

7. Whenever gases such as nitrogen are used to provide an inert atmosphere for preventing the ignition of flammable gases or vapors, no flame, arc, spark, or other source of ignition may be permitted unless the oxygen concentration is maintained at less than 20 percent of the concentration that will support combustion.
  - a. Testing of the oxygen content shall be conducted with sufficient frequency to insure conformance with this requirement.
  - b. A written record of the results of such testing shall be made and kept at the work site for the duration of the work.
8. Only approved lighting and electrical equipment may be used in confined spaces subject to dangerous air contamination by flammable or explosive substances.

### **Precautions for emergencies involving work in confined spaces**

At least one person trained in first aid and CPR shall be immediately available whenever the use of respiratory protective equipment is required by this part. Standards for CPR training shall follow the principles of the American Heart Association or the American Red Cross.

### **Appendices**

Appendix A – Chart CS-1

## Appendix A Confined Space Classification Table Chart CS-1

PARAMETERS	Class I	Class II	Class III
<b>Characteristics</b>	Atmosphere where dangerous air Contamination, oxygen deficiency, or Oxygen enrichment cannot develop. Potential hazard. Requires no Modification of work procedures. Standby rescue procedures.	Atmosphere free of dangerous air contamination, oxygen deficiency, or Oxygen enrichment has been verified. Dangerous, but not immediately life threatening. Rescue procedures require fully equipped life support equipment.	Atmosphere free of dangerous air contamination, oxygen deficiency, or Oxygen enrichment cannot be verified. Immediately dangerous to life or health. Entry and rescue procedures require individuals to be fully equipped with life support equipment.
<b>Oxygen</b>	19.5% to 21.4%	16.1% to 19.4%	16% or less
<b>Flammability Characteristics</b>	10% LEL or less	10% to 19% LEL	20% or greater of LEL
<b>Procedures</b>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Space tested for oxygen and air contaminates.</li> <li>3. Monitored or ventilated continuously.</li> <li>4. Standard rescue procedures.</li> <li>5. No standby required.</li> </ol>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Space tested for oxygen and air contaminates.</li> <li>3. Monitored continuously.</li> <li>4. Standby required.</li> <li>5. Maintain communications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Approved respirator.</li> <li>3. Safety belt or harness.</li> <li>4. Hoisting devices.</li> <li>5. Standby required                             <ul style="list-style-type: none"> <li>~ Maintain communication.</li> <li>~ SCBA available.</li> <li>~ Alert rescue team before entering.</li> </ul> </li> <li>6. Trained employee in CPR/First Aid.</li> </ol>
<b>Toxicity **IDLH</b>	Hydrogen Sulfide      0 ppm Carbon Monoxide      0 ppm	Hydrogen Sulfide      1 – 10 ppm Carbon Monoxide      1 – 35 ppm	Hydrogen Sulfide      11 – 15 ppm ~ Greater than 15 ppm is IDLH Carbon Monoxide      36 – 200 ppm ~ Greater than 200 ppm is IDLH

ppm = parts per million

\*\* Immediately Dangerous to Life or Health – Class A only

### Purpose

The Company is committed to protecting the environment through preventing spills, proper disposal of hazardous waste, recycling industrial and construction waste, substituting products with less environmental impact, and limiting emissions. Our companies use limited amounts of hazardous and/or chemical material that could cause a spill of any magnitude.

However, any spill, no matter the size is to be treated appropriately and all necessary actions taken to contain the spill and to properly dispose of any waste. All operations shall be surveyed for possible hazardous and/or chemical spills (i.e. threading oil, fuel). Possible spills would be generally one gallon or less. Prior to using any hazardous materials, the employee using the material will refer to the appropriate SDS and manufacturers guidelines for specific responses and actions for containment of spills. If a release or spill occurs, the Company will enact established protocols to mitigate the impact on the environment, contact the required governmental agencies, and return the environment to its original condition.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources to assure the program's effectiveness.

#### *Safety and Risk Professional*

Shall audit the projects and locations for applicability of state and federal environmental regulations and permit requirements. After identifying the required permits and programs, the *Safety and Risk Professional* shall apply for and obtain the required permits and bring the project or location into compliance. The *Safety and Risk Professional*

shall also have the responsibility for training management and employees as to their responsibilities and duties as directed by the environmental regulations and permits.

#### *Employees*

Shall have attended the required trainings on the applicable environmental permits and understand requirements and their roles under each. The employee shall monitor their assigned work for processes and occurrences for non-compliance and alert the Company immediately.

### Procedure

Waste shall be managed as much as feasible. Good waste management techniques include:

1. Reduction – decreasing the quantity of waste produced.
2. Reusing – using a product again in its original form for either the same or a different purpose.
3. Recycling – separating, reprocessing, and / or decontaminating wastes to recover reusable materials or valuable components.
4. Recovery – extracting certain valuable materials from a waste material.

# Environmental Safety

## Section 4.16

An **environmental emergency** is a *sudden threat* to the public health or the well-being of the environment, arising from the release or potential release of oil, radioactive materials, or hazardous chemicals into the air, land, or water.

Examples of environmental emergencies include:

- oil and chemical spills,
- radiological and biological discharges, and
- accidents causing releases of pollutants

These emergencies may occur from transportation accidents, events at chemical or other facilities using or manufacturing chemicals, or as a result of natural or man-made disaster events. If you are involved in or witness an environmental emergency that presents a sudden threat to public health, you must call the **National Response Center** at: **1-800-424-8802**.

# Heat Stress

## Section 4.17

### **Purpose**

The intent of this policy is to establish practice guidelines to prevent employees from suffering heat related illnesses.

### **Responsibilities**

Responsibilities for the successful implementation of this program shall be as follows:

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program, including the necessary leadership, direction, enforcement and resources that will assure this program's effectiveness.

#### *Safety Manager*

Shall assist managers and supervisors by periodically auditing the employees' work environment for program effectiveness and compliance issues. Safety managers will also assist in any required corrective measures.

#### *Employee*

Employees shall report to their supervisors immediately should they encounter any workplace conditions where it may be necessary to implement all or part of this procedure.

### **General Requirements**

1. Each work place where heat extremes may be found should be assessed on a continual basis and all employees shall be kept updated via the supervisor on the current situation and procedure.

### **Training**

This program shall be reviewed with and understood by all new-hire employees and all employees periodically thereafter.

### **Appendices**

Appendix A - OSHA Heat Stress Quick Card

Appendix A  
OSHA Heat Stress Quick Card



**Protect Yourself**  
**Heat Stress**



When the body is unable to cool itself by sweating, several heat-induced illnesses such as heat stress or heat exhaustion and the more severe heat stroke can occur, and can result in death.

**Factors Leading to Heat Stress**

High temperature and humidity; direct sun or heat; limited air movement; physical exertion; poor physical condition; some medicines; and inadequate tolerance for hot workplaces.

**Symptoms of Heat Exhaustion**

- Headaches, dizziness, lightheadedness or fainting.
- Weakness and moist skin.
- Mood changes such as irritability or confusion.
- Upset stomach or vomiting.

**Symptoms of Heat Stroke**

- Dry, hot skin with no sweating.
- Mental confusion or losing consciousness.
- Seizures or convulsions.

**Preventing Heat Stress**

- Know signs/symptoms of heat-related illnesses; monitor yourself and coworkers.
- Block out direct sun or other heat sources.
- Use cooling fans/air-conditioning; rest regularly.
- Drink lots of water; about 1 cup every 15 minutes.
- Wear lightweight, light colored, loose-fitting clothes.
- Avoid alcohol, caffeinated drinks, or heavy meals.

**What to Do for Heat-Related Illness**

- Call 911 (or local emergency number) at once.

While waiting for help to arrive:

- Move the worker to a cool, shaded area.
- Loosen or remove heavy clothing.
- Provide cool drinking water.
- Fan and mist the person with water.

For more complete information:



OSHA 3154-07R-06

## Office Safety

### Section 4.18

#### Purpose

To establish and implement requirements associated with the safe use of office equipment in the work environment.

#### References

None

#### Responsibilities

##### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

##### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees' work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

##### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of the office environment.

#### General Requirements

1. Chairs, wastebaskets, and similar objects shall not be left in aisles where they constitute a tripping hazard.
2. Electrical cords shall be kept out of aisles and walkways and so restrained so as not to constitute a tripping hazard.
3. Desk drawers, cabinet doors, and file drawers shall not be left open while unattended. Only one file drawer in a cabinet shall be opened at any one time to prevent tripping.
4. Broken glass or other sharp objects shall not be placed in wastebaskets unless protected.
5. Only approved ladders or step stools shall be used to reach material on high shelves or other similar locations. Boxes, crates or chairs shall not be used for such purposes.
6. When there is a spill on the floor, it shall be cleaned up immediately to remove the slipping hazard.
7. Open all doors slowly in case another employee is also entering the opening at the same time from the opposite direction.
8. Do not use any office equipment that appears to be damaged electrically or has loose wiring, plugs, or missing ground plugs.
9. Never overload circuits.
10. When using extension cords, use the proper size extension cord for the situation and make sure it does not get pinched, stepped on, run over, placed under carpet, or draped over doorways.
11. Office heaters pose a serious fire hazard, because they generate a lot of heat in a small area. Do not position the heater so that it will not tip over or come into contact with anything flammable. Never leave the space heater on while away from your office for long periods of time.
12. Carpet conditions shall be in good condition with no tears, loose ends, etc., because of the possible tripping hazard that may be created.

# Office Safety

## Section 4.18

### Office Stations

1. Have your chair adjusted so that your feet are flat on the floor or supported by a footrest.
2. The angle between your thigh and lower leg shall be 90 degrees or slightly more with a space between the back of your knee and the chair.
3. The backrest of your chair shall be adjusted to match your lumbar area (lower back) of your back to provide proper support.
4. The forward tension of the chair shall be adjusted until it gives your back adequate support.
5. The keyboard shall be placed at a slight incline and at about seated elbow height to encourage keying with straight wrists and relaxed shoulders.
6. If your keyboard height is not adjustable, you may have to raise your chair, which would result in using a footrest. The most convenient solution would be to retrofit your workstation with an adjustable keyboard tray.
7. If using a mouse, you should position it as close to the keyboard as possible and at matching height.
8. Frequent computer users may find more comfort in using a padded and slightly curved wrist rest to keep wrists straight and reduce stress on the upper shoulders and upper back.
9. The top of the computer monitor should be placed at seated eye level to improve head and neck posture.
10. A paper holder may be used to hold the copy close to the monitor to improve neck posture and reduce eye fatigue.
11. To reduce glare on VDT screens, position the screen so that it is perpendicular to the overhead lights, not parallel. Look for reflections of overhead light, task lights, or sunlight on the computer screen and tilt or reposition the screen to eliminate these reflections or invest in glare covers to fit over the screen.

### Training

Employees shall receive training upon new hire as applicable and periodically thereafter.

# Workplace Violence Policy

## Section 4.19

### Purpose

The Company is committed to maintaining a safe, healthy, and efficient working environment where employees and customers are free from the threat of workplace violence.

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including: the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and / or Supervisors by auditing the employees' work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understood their responsibilities with respect to proper and safe actions to be taken in the workplace.

### Workplace Violence Policy

The safety and security of company employees and customers is very important. Threats, threatening behavior, acts of violence, or any related conduct which disrupts another's work performance or the organization's ability to execute its mission will not be tolerated.

Any person who makes threats, exhibits threatening behavior, or engages in violent acts on state-owned or leased property may be removed from the premises pending the outcome of an investigation. Threats, threatening behavior, or other acts of violence executed off state-owned or leased property, but directed at state employees or members of the public while conducting official state business, is a violation of this policy. Off-site threats include but are not limited to threats made via the telephone, fax, electronic or

conventional mail, or any other communication medium.

Violations of this policy will lead to disciplinary action that may include dismissal, arrest, and prosecution. In addition, if the source of such inappropriate behavior is a member of the public, the response may also include barring the person(s) from state-owned or leased premises, termination of business relationships with that individual, and / or prosecution of the person(s) involved.

Employees are responsible for notifying their supervisor of any threats which they have witnessed, received, or been informed that another person has witnessed or received. Employees should also report any behavior they have witnessed which they regard as threatening or violent when that behavior is job related or might be carried out on state-owned or leased property or in connection with state employment.

Each employee who receives a protective or restraining order which lists state-owned or leased premises as a protected area is required to provide their agency designee with a copy of such order.

## Sexual and Other Unlawful Harassment

### Section 4.20

#### Purpose

The Company is committed to providing a work environment free of unlawful harassment.

#### Responsibilities

##### *Managers / Supervisors*

Shall be responsible for the implementation of the program including: the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

##### *Safety Manager*

Shall assist Managers and / or Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort.

##### *Employees*

Shall have read and understood their responsibilities with respect to proper and safe actions to be taken in the workplace.

#### Policy

Company policy prohibits sexual harassment, and harassment based on pregnancy, childbirth or related medical conditions, race, religious creed, color, national origin or ancestry, physical or mental disability, medical condition, marital status, age, sexual orientation, veteran status, family care status or any other basis protected by federal, state or local law or ordinance regulation.

The Company condemns harassment in the workplace and acknowledges that such conduct violates the law. It is also the policy of the Company that it will not tolerate verbal or physical conduct by any employee, whether the opposite sex or same sex, which harasses, disrupts, or interferes with another's work performance or which creates an intimidating, offensive, or hostile workplace.

Harassment of any type will be grounds for immediate and appropriate disciplinary action.

***Prohibited unlawful harassment includes, but is not limited to, the following behavior:***

1. Any unwelcome sexual advances, requests for sexual favors, sexually motivated physical contact or other verbal or physical conduct or communication of a sexual nature.

*The following kinds of conduct are examples of sexual harassment:*

a) Use of any offensive or demeaning terms which have sexual connotations;

b) Repeated unwelcome remarks about another person's clothing or body;

c) Unwelcome invitations to social engagements or work-related activities;

d) Any indication that an employee's job security, job assignment, conditions of employment, or opportunities for advancement depend on the granting of sexual favors to any other employee, supervisor or manager;

e) Objectionable touching and pinching;

f) Any action relating to an employee's job status which is in fact affected by considerations of his or her sex or the granting or refusal of social favors;

g) The deliberate or careless creation of an atmosphere of sexual harassment or intimidation.

2. Verbal conduct includes communication which is spoken, written, or electronically transmitted. Examples include epithets, derogatory jokes or comments, slurs or unwanted sexual advances, invitations or comments;

3. Visual conduct such as derogatory and / or sexually oriented posters, calendars, photography, cartoon, drawings, gestures, or screensavers;

# Sexual and Other Unlawful Harassment

## Section 4.20

4. Physical conduct such as assault, unwanted touching, blocking normal movement, or interfering with work because of sex, race or any other protected basis;

5. Threats or demands to submit to sexual requests as a condition of continued employment, or to avoid some other loss, and offers of employment benefits in return for sexual favors; and

6. Retaliation for having reported or threatened to report harassment.

### Complaints

Any employee who feels that he or she is being harassed, whether sexual nature or not, or who believes he or she has witnessed any harassment, should contact his or her immediate supervisor. If the employee is uncomfortable about presenting the complaint to his or her immediate supervisor, or if the supervisor's behavior is cause for the complaint, the employee should contact your Company President or other officer.

Allegations of harassment of any kind will be fully investigated and corrective or disciplinary action taken, up to and including dismissal from employment, as warranted.

Charges of unlawful harassment shall be handled discreetly, and all parties involved will be given as much protection of privacy as possible. There will be no retaliation against an employee for filing any unlawful harassment complaint.

### Training

This policy should be introduced to all new employees at time of hire and reviewed with periodically or as need warrants.

# Hexavalent Chromium Exposure Control Procedures

## Section 4.21

### Purpose

This procedure is provided for the protection of personnel, co-workers, and others working under the control or supervision of the Company by establishing minimum acceptable standards for working around and with Hexavalent Chromium, also known as Cr(VI), containing materials and/or processes which create Cr(VI).

### References

OSHA 1910.1026, 1926.1126, 1915.1026

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible to conduct effective Pre-Job Planning to identify levels of protection and clean-up facilities that may be required for working in an area where exposure to Cr(VI) could affect employee Health & Safety.

#### *Safety Manger*

Shall be responsible for the implementation of a site specific Cr(VI) exposure program, training, and providing industrial hygiene consultation and support.

#### *Employees*

Shall be responsible for following site specific Cr(VI) exposure control programs.

### Definitions

#### *Action Level*

2.5  $\mu\text{g}/\text{m}^3$  calculated as an eight (8) hour time-weighted average for airborne chromium(VI).

#### *Exposure Assessment*

Employers are required to determine if any employee is exposed to Cr(VI) concentrations at or above the action level of 2.5  $\mu\text{g}/\text{m}^3$  as an eight (8) hour time weighted average.

### *Permissible Exposure Limit (PEL)*

An eight (8) hour time weighted average of 5.0  $\mu\text{g}/\text{m}^3$ .

### Potential sources of Cr(VI) Exposure

Tasks that may expose workers to potentially harmful Cr(VI) levels include:

1. Welding of stainless steel or chromium coated material
2. Weld overlay with stainless steel.
3. Cutting or torch burning of stainless steel or coated material
4. Plasma cutting of stainless steel.
5. Forging.
6. Chrome plating.
7. Heat treatment.
8. Hard surfacing materials (welding, cutting, or air arcing of hard surface material)

### Routes of Entry

Primary methods of exposure:

1. Inhalation of dusts, mists, or fumes that have been generated by cutting, air arcing, or welding on stainless steel.

### Exposure Assessments

Initial (and possibly periodic) exposure assessments are needed to determine if airborne exposures to Cr(VI) exceed the action level (2.5  $\mu\text{g}/\text{m}^3$ ) or the PEL (5.0  $\mu\text{g}/\text{m}^3$ ).

Action Level Requirements:

1. If air monitoring results are above 2.5  $\mu\text{g}/\text{m}^3$ , but below 5.0  $\mu\text{g}/\text{m}^3$ , periodic air monitoring at least every 6 months shall be conducted to determine future action. No control measures are required

# Hexavalent Chromium Exposure Control Procedures

## Section 4.21

2. If initial air monitoring results are  $< 2.5 \mu\text{g}/\text{m}^3$ , monitoring may be discontinued; however, 2 consecutive measurements taken at least 7 days apart must demonstrate that exposure levels are below the action level before monitoring may be discontinued.

### PEL Requirements:

1. If air monitoring results indicate that exposure levels are  $> 5.0 \mu\text{g}/\text{m}^3$ , additional monitoring must be performed every 3 months.
2. If air monitoring results indicate that exposure levels are  $> 5.0 \mu\text{g}/\text{m}^3$  for less than 30 days during a 12 month period, effective control measures, including respiratory protection shall be used to ensure actual exposure levels are  $< 5.0 \mu\text{g}/\text{m}^3$ .
3. If air monitoring results indicate that exposure levels are  $> 5.0 \mu\text{g}/\text{m}^3$  for 30 days or more during a 12 month period, effective control measures shall be used to ensure actual exposure levels are  $< 5.0 \mu\text{g}/\text{m}^3$ .

Control Measures shall be implemented in this order:

1. Use feasible engineering and work practice controls (engineering controls are not required until May 31, 2010; respiratory protection can be used until that time).
2. Use respiratory protection if levels cannot get below  $5.0 \mu\text{g}/\text{m}^3$  by engineering and work practice controls alone.

### Personal Protective Equipment

If specifically required for a project, Company approved PPE items will include:

1. Respiratory protection.
2. Coveralls or similar full-body work clothing.
3. Gloves, hats, and disposable shoe coverlets.

4. Face shields, vented goggles or other appropriate eye and face protection.

### Personal Hygiene and Decontamination

Safe practices for avoiding consumption of contaminated dusts include:

1. Washing face and hands with soap and water before eating or drinking.
2. Do not carry or consume food or drink in the work area.
3. Do not use tobacco or consume chewing gum in the work area.
4. Never use compressed air to blow dust.

### Training

Employees shall receive training on the contents of this program prior to the commencement of work activities with potential Cr(VI) exposures, and periodically thereafter.

### Appendices

Cr(VI) Air Monitoring Checklist – Appendix A



## Hexavalent Chromium Air Monitoring Checklist

### 5.0 Air Movement and Air Movers (make notes on sketch, if needed)

- 5.1 Is point of operation ventilation available? Yes  No   
 If yes, is it used properly? Yes No  
 Distance from point of welding to point of ventilation: \_\_\_\_\_
- 5.2 Is natural ventilation occurring? Yes No  
 If yes, describe ventilation: \_\_\_\_\_  
 (including direction relative to welder's breathing zone)
- 5.3 Is mechanical general ventilation being used? Yes No  
 If yes, describe ventilation: \_\_\_\_\_  
 (including exhaust rate and/or number of room air changes per hour, if known)
- 5.4 Are cooling fans or makeup air units being used? Yes No  
 If yes, describe air flow: \_\_\_\_\_  
 (including direction relative to welder's breathing zone)

### 6.0 Welding Process

- 6.1 Type of welding process being used (check one):  
 Shielded Metal Arc Welding (SMAW)                      Gas Tungsten Arc Welding (GTAW)  
 Gas Metal Arc Welding (GMAW)                      Flux-core Arc Welding (FCAW)  
 Plasma Arc Welding (PAW)                              Submerged Arc Welding (SAW)  
 Other (list): \_\_\_\_\_
- 6.2 Type of base metal being used (check one):  
 Stainless steel    Carbon steel  
 Mild steel    Chrome-coated metal  
 Other (list): \_\_\_\_\_
- 6.3 Description of welding activities/processes (use separate sheet or activity diary)  
 (i.e., What was being welded? Was it fillet, groove or flange welding, etc.?)  
 \_\_\_\_\_
- 6.4 Thickness of the base metal (i.e. 18 gauge, 10 gauge, etc.): \_\_\_\_\_
- 6.5 Reported ingredients of the base metal (i.e., x% chrome, x% nickel, etc.): \_\_\_\_\_
- 6.6 Was a shielding gas used? Yes Type? \_\_\_\_\_ No
- 6.7 AWS electrode/wire classification and reported ingredients of the consumable:  
 \_\_\_\_\_ (% chromium)

# Hydrogen Sulfide

## Section 4.22

### Purpose

The purpose of this procedure is to formally establish the company's actions for employees who encounter hydrogen sulfide (H<sub>2</sub>S) on the jobsite. It is the policy of this Company not to engage in activities potentially involving H<sub>2</sub>S without the proper planning or protection.

### References

NIOSH Pocket Guide to Chemical Hazards

### Responsibilities

#### *Managers / Estimators / Superintendents*

It is the responsibility of the Estimator and Manager to make the initial inquiry to the property owner if H<sub>2</sub>S is present or has the potential to be present in the property prior to the commencement of work activities. During work activities it is the Project Superintendent's responsibility in coordination with the Manager to ensure that our employees take the proper precautions for potential exposure. They shall also work in cooperation with the Safety Manager to properly maintain, bump test and calibrate H<sub>2</sub>S monitors according to manufacturer's guidelines. Records must be kept of all personal H<sub>2</sub>S meters.

#### *Safety Manager*

Shall be responsible for the training of personnel who may encounter H<sub>2</sub>S on the job-site. They shall also work in cooperation with the Project Superintendent to properly maintain, bump test and calibrate H<sub>2</sub>S monitors according to manufacturer's guidelines. Records must be kept of all personal H<sub>2</sub>S meters.

#### *Employees*

Shall be responsible for reporting areas suspected of encountering H<sub>2</sub>S and following safe work practices to prevent accidental release. Employees shall also be responsible for following manufacturer guidelines in relation to the H<sub>2</sub>S meter, and maintaining proper records.

### Definitions

#### *Hydrogen Sulfide (H<sub>2</sub>S)*

H<sub>2</sub>S occurs naturally and is also produced by industrial activities such as food processing, coke ovens, paper mills, tanneries, and petroleum refineries. Hydrogen sulfide is a colorless, flammable gas under normal conditions. It smells like rotten eggs and can be smelled at low levels. Just a few breaths of air containing high levels of H<sub>2</sub>S gas can cause death. Lower, longer-term exposure can cause eye irritation, headache, and fatigue.

The NIOSH Permissible Exposure Limit (PEL) for H<sub>2</sub>S is 10ppm.

#### *Hydrogen Sulfide (H<sub>2</sub>S) Monitor*

A monitor that can be used to detect the presence of H<sub>2</sub>S. It is common for a property owner to require each employee to wear an individual monitor. Monitors will be provided to employees by employer.

Monitors must be worn in the employee's breathing zone (i.e., from the wearer's ears forward within 12 inches of their nose and mouth). This means that the monitor can be worn on the front or sides of the hard hat (not on the back of the hardhat), and shirt collar or pockets. H<sub>2</sub>S monitors cannot be worn on belts, pants, pockets, etc. Follow the manufacturer and property owner's guidelines at all times. All alarms must be set to initially alarm at 10 ppm, and must have exceedence logging capabilities.

#### *Manufacturer's Guidelines*

The guidelines found in the owner's manual for each individual H<sub>2</sub>S meter. Manufacturer's guidelines must be followed at all times.

### Pre-Planning

It is the responsibility of the Estimator and Manager to make the initial inquiry to the property owner if H<sub>2</sub>S is present or has the potential to be present in the property prior to the commencement of work activities.

# Hydrogen Sulfide

## Section 4.22

### Accidental Exposure

If during the course of normal duties, if an employee's H<sub>2</sub>S monitor alarms, or if accidental exposure is suspected, the job-site Foreman / Superintendent / employees shall take the following action:

1. Immediately clear the area.
2. Immediately notify your Forman and/or Superintendent
3. Immediately notify the Owner's representative.

### Training

Employees shall receive training on the contents of this program prior to the commencement of work activities that involve or could involve work on/or adjacent to H<sub>2</sub>S exposures, and annually thereafter.

## Benzene

### Section 4.23

#### Purpose

The purpose of this procedure is to formally establish the Company's actions for employees who encounter Benzene on the jobsite. It is the policy of this Company not to engage in activities potentially involving Benzene without the proper planning or protection.

#### References

NIOSH Pocket Guide to Chemical Hazards  
29 CFR 1926.55  
29 CFR 1910.106

#### Synonyms

Benzol, benzole, coal naphtha, cyclohexatriene, phene, phenyl hydride, pyrobenzol.

#### Scope

This policy shall apply to all employees assigned in or have access to an area having direct exposure to Benzene.

#### Responsibilities

##### *Managers / Estimators / Superintendents*

It is the responsibility of the Estimator and Manager to make the initial inquiry to the property owner if Benzene is present or has the potential to be present in the property prior to the commencement of work activities. During work activities it is the Project Superintendent's responsibility in coordination with the Manager to ensure that our employees take the proper precautions for potential exposure. They shall also work in cooperation with the Safety Manager to properly maintain, bump test and calibrate Benzene monitors according to manufacturer's guidelines. Records must be kept of all air monitors.

##### *Safety Manager*

Shall be responsible for the training of personnel who may encounter Benzene on the jobsite. They shall also work in cooperation with the Project Superintendent to properly

identify possible hazardous situations, communicate to the employees, and provide correct personal protective equipment (PPE). The Safety Manager has the overall responsibility for implementing and enforcing the program.

##### *Employees*

Shall be responsible for reporting areas suspected of encountering Benzene and following safe work practices to prevent accidental release. Employees shall also be responsible for following manufacturer guidelines in relation to the Benzene meter, and maintaining proper records.

#### Definitions

##### *Benzene*

Benzene is a clear, colorless liquid with a distinctive sweet odor. Its boiling point is 176 degrees Fahrenheit (F) and its flashpoint is 12 degrees F. The lower flammable limit is 1.3% and the upper flammable limit is 7.5%. Benzene is a flammable liquid with vapors that can form explosive mixtures. All ignition sources must be controlled when Benzene is present. Areas where liquid or vapor may be released should be considered hazardous locations.

Benzene vapors are heavier than air which causes the vapors to travel along the ground level to possible ignition sources.

Benzene is classified as a 1B flammable liquid. A concentration of 3,250 ppm is considered a potential fire explosion hazard.

#### Program Elements

The company shall make reasonable efforts to eliminate possible exposure to Benzene in the work environment through the implementation of engineering controls.

The employer will ensure that Benzene levels do not exceed the Permissible Exposure Limits (PEL's) set by regulatory agencies.

# Benzene

## Section 4.23

Air monitoring shall be done before initiation of work and continuously thereafter in areas where benzene exposure is most likely to occur.

### Program Procedures

The following procedures must be followed to ensure proper monitoring:

1. Project locations and production areas will have area monitoring conducted to detect the presence of Benzene. Notification to employees in these areas prior to sampling must occur.
2. Gas monitors are calibrated according to manufacturer's specifications
3. Data is recorded to indicate the area or department tested, and concentration levels.
4. Results are posted for employee review in monitored areas.
5. Records will be maintained at the applicable project location and or production environment.

### Training

When Benzene is present and possible routine or emergency exposure may occur, the appropriate hazard communication training shall be given to all applicable employees. Training will be initially at the time of hire and conducted periodically thereafter.

# Cold Stress

## Section 4.24

### Purpose

The intent of this policy is to establish practice guidelines to prevent employees from suffering cold related illnesses.

### Responsibilities

Responsibilities for the successful implementation of this program shall be as follows:

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program, including the necessary leadership, direction, enforcement and resources that will assure this program's effectiveness.

#### *Safety Manager*

Shall assist managers and supervisors by periodically auditing the employees' work environment for program effectiveness and compliance issues. Safety managers will also assist in any required corrective measures.

#### *Employee*

Employees shall report to their supervisors immediately should they encounter any workplace conditions where it may be necessary to implement all or part of this procedure.

### General Requirements

Each work place where cold environment extremes may be found should be assessed on a continual basis and all employees shall be kept updated via the supervisor on the current situation and procedure.

### Most common cold induced problems

Hypothermia and frostbite

### Hypothermia

*Hypothermia* which means "low heat", is a potentially serious health condition. This occurs when body heat is lost faster than it can be replaced. When the core body temperature drops below the normal 98.6° F to around 95° F, the onset of symptoms normally begins. The person may begin to shiver and stomp their feet in order to generate heat. Workers may lose coordination, have slurred speech, and fumble with items in the hand. The skin will likely be pale and cold. As the body temperature continues to fall these symptoms will worsen and shivering will stop. Workers may be unable to walk or stand. Once the body temperature falls to around 85° F severe hypothermia will develop and the person may become unconscious, and at 78°, the person could die.

### Frostbite

*Frostbite* occurs when the skin actually freezes and loses water. In severe cases, amputation of the frostbitten area may be required. While frostbite usually occurs when the temperatures are 30° F or lower, wind chill factors can allow frostbite to occur in above freezing temperatures. Frostbite typically affects the extremities, particularly the feet and hands. The affected body part will be cold, tingling, stinging or aching followed by numbness. Skin color turns red, then purple, then white, and is cold to the touch. There may be blisters in severe cases.

### Preventive Measures

Plan for work in cold weather. Wearing appropriate clothing and being aware of how your body is reacting to the cold are important to preventing cold stress. Avoiding alcohol, certain medications and smoking can also help to minimize the risk.

# Cold Stress

## Section 4.24

Drink plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather. If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold. Try to work in pairs to keep an eye on each other and watch for signs of cold stress. Avoid fatigue since energy is needed to keep muscles warm. Take frequent breaks and consume warm, high calorie food such as pasta to maintain energy reserves. *(For more information, please see Appendix C: "Cold Stress Hazard Information Sheet")*

### Training

This program shall be reviewed with and understood by all new-hire employees and all employees periodically thereafter.

### Appendices

Appendix A – NWS: WINDCHILL CHART

# Cold Stress

## Section 4.24

NWS WINDCHILL CHART		FROSTBITE TIMES:															
		30 minutes	10 minutes	5 minutes	5 minutes												
		TEMPERATURE (°F / °C)															
WIND (mph / kph)	TEMPERATURE (°F / °C)	30 minutes	10 minutes	5 minutes	5 minutes	5 minutes											
40/64	30/-1	25/4	20/7	15/9	10/12	5/15	0/18	-5/21	-10/23	-15/26	-20/29	-25/32	-30/34	-35/37	-40/40	-45/43	
5/8	36/2	31/-1	25/-4	19/7	13/11	7/14	1/-17	-5/21	-11/24	-16/27	-22/30	-28/33	-34/37	-40/40	-46/43	-52/47	-57/49
10/16	34/1	27/3	21/6	15/9	9/13	3/16	-4/20	-10/23	-16/27	-22/30	-28/33	-35/37	-41/41	-47/44	-53/47	-59/51	-66/54
15/24	32/0	25/-4	19/-7	13/-11	6/14	0/18	-7/22	-13/25	-19/28	-26/32	-32/36	-39/39	-45/43	-51/46	-58/50	-64/53	-71/57
20/32	30/-1	24/4	17/8	11/-12	4/16	-2/19	-9/23	-15/26	-22/30	-29/34	-35/37	-42/41	-48/44	-55/48	-61/52	-68/56	-74/59
25/40	29/2	23/5	16/9	9/13	3/16	-4/20	-11/24	-17/27	-24/31	-31/35	-37/38	-44/42	-51/46	-58/50	-64/53	-71/57	-78/61
30/48	28/2	22/6	15/9	8/13	1/-17	-5/21	-12/24	-19/28	-26/32	-33/36	-39/39	-46/43	-53/47	-60/51	-67/55	-73/58	-80/62
35/56	28/2	21/6	14/10	7/14	0/18	-7/22	-14/26	-21/29	-27/33	-34/37	-41/41	-48/44	-55/48	-62/52	-69/56	-76/60	-82/63
40/64	27/3	20/7	13/11	6/14	-1/18	-8/22	-15/26	-22/30	-29/34	-36/38	-43/42	-50/46	-57/49	-64/53	-71/57	-78/61	-84/64
45/72	26/3	19/7	12/11	5/15	-2/19	-9/23	-16/27	-23/31	-30/34	-37/38	-44/42	-51/46	-58/50	-65/54	-72/58	-79/62	-86/66
50/80	26/3	19/7	12/11	4/16	-3/19	-10/23	-17/27	-24/31	-31/35	-38/39	-45/43	-52/47	-60/51	-67/55	-74/59	-81/63	-88/67
55/89	25/4	18/8	11/12	4/16	-3/19	-11/24	-18/28	-25/32	-32/36	-39/39	-46/43	-54/48	-61/52	-68/56	-75/59	-82/63	-89/67
60/97	25/4	17/8	10/12	3/16	-4/20	-11/24	-19/28	-26/32	-33/36	-40/40	-48/44	-55/48	-62/52	-69/56	-76/60	-84/64	-91/68

\* Source: NOAA, National Weather Service Office of Climate, Water, and Weather Services. [www.nws.noaa.gov/as/windchill/](http://www.nws.noaa.gov/as/windchill/)

# Personal Protective Equipment (PPE)

## Section 5.1

### Purpose

The Company has established the following minimum requirements with respect to employee personal protective equipment. Owners or clients may call for more stringent requirements than outlined in this policy, which we shall observe.

### References

OSHA 1926.95, 1910.133

### Responsibilities

#### *Managers / Supervisors*

This individual(s), or their designee, shall be responsible for identifying and procuring the necessary PPE to be utilized for employees at the project or production environment based on the foreseeable hazards anticipated with the work or Owner requirements. This individual(s) shall consult with the applicable Safety Manager as necessary to assure proper selection of all PPE. They shall also assure that employees receive training / instruction in the proper use and care of assigned PPE. This individual(s) shall enforce all aspects of this policy.

#### *Safety Manager*

Shall assist Managers and Supervisors in the proper selection of all PPE. This individual shall audit project and production environments to assure that all required PPE is being utilized in the best interest of employee protection and prevention of injuries and illnesses.

#### *Employee*

Shall wear, utilize, and take reasonable care of all PPE. Employees shall be responsible to communicate defective or damaged PPE immediately to their supervisor for repair or replacement. It is the expectation of the Company that all employees shall use all required PPE and be accountable to all aspects of this policy.

### General Requirements

PPE shall be selected by a qualified individual based on the hazards presented or as work environment conditions warrant. PPE shall be issued to all applicable employees prior to the commencement of work activities as applicable. They shall receive instruction on why the PPE is required and the basis for the selection of the PPE issued.

Employee-owned PPE shall not be used unless the employee's supervisor has been consulted to determine the level of protection the PPE will afford the employee. Supervisors shall consult with the Superintendent and or Safety Manager to determine the use of employee-owned PPE. Employee-owned PPE shall not be used without the consent of Supervisory or Safety Department consent.

The PPE requirements of the Company are as follows:

#### *Basic Apparel*

Employees shall wear clothing that is suitable for the hazards presented. Full length pants and shirt with sleeves covering the shoulders are required for all construction, industrial, commercial, and residential work. Clothing that is torn, loose, or frayed shall not be worn. Employees exposed to welding or grinding sparks shall have full length sleeves.

#### *Head Protection*

Hard hats shall be worn at all times on construction and industrial projects by all personnel including subcontractors, vendors, specialty services, etc. For commercial projects and fabrication areas, hard hats shall be worn when overhead hazards warrant such use or contractual obligations require. Hard hats shall meet ANSI specifications.

# Personal Protective Equipment (PPE)

## Section 5.1

Hard hats shall not be altered by drilling, cutting, or any other action that would compromise structural integrity or circumvent manufacturer's suggested safe usage requirements.

### *Eye and Face Protection*

All employees on construction and industrial projects shall wear eye protection. All production operations that expose employees to projectile or other eye hazards shall also wear eye protection. For the purposes of this policy, eye protection consists of approved safety glasses with side shields either integrated or affixed to prescription safety glasses. All safety glasses shall meet applicable ANSI requirements. If prescription safety glasses do not meet ANSI requirements, approved over glasses shall be worn.

Additional eye protection shall be required for certain task-specific activities. Eye protection or a combination of eye protection for the following activities is as follows:

*Grinding* – Face shield over safety glasses.

*Welding* – Safety glasses under welding hood with proper shaded lens.

*Gas Cutting/Welding* – proper goggles.

*Concrete Chipping* – Face shield with safety glasses.

*Compressed Air Cleaning* – Face shield with safety glasses.

*Powder-Actuated Tools* – Safety glasses.

### *Hearing Protection*

Hearing protection will be provided and used by employees when the sound level in the work environment with respect to the duration of time worked is as follows:

Hours	Sound Level - dBA
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4	115

Section 4.3 of this manual, entitled Occupational Noise Exposure provides additional information on this subject.

### *Footwear*

Employees on construction, industrial, commercial, and residential project shall wear sturdy work boots affording ankle protection. Steel-toed boots shall be worn when risk of crushing hazards are present. Steel-toed boots shall meet ANSI requirements. Tennis shoes or other casual footwear are not acceptable.

### *Hand Protection*

Work gloves and welding gloves shall be provided when the work environment conditions or hazards warrant such protection. When chemical hazards are present, appropriate gloves shall be selected and assigned to all employees as applicable.

### *Chemical Protection*

Chemical suits, gloves, boots, head, eye, and face protection shall be selected and provided to employees when chemical hazards warrant such use. The job-site Supervisor or applicable Safety Manager shall evaluate, select, and procure the type of chemical protection necessary based on the hazard presented and the level of employee protection required.

# Personal Protective Equipment (PPE)

## Section 5.1

### *High Visibility Work Garments*

Employees who will be working on active roadways or have exposures to heavy equipment, such as: graders, bulldozers, backhoes, mobile cranes, all-terrain forklifts, articulating earth movers, or other like equipment shall wear a highly visible outer garment (vest) that complies with Class II ANSI requirements.

### *Safety Harness and Lanyards*

If employees will be exposed to fall hazards > 6', and engineering controls are not feasible, employees shall be provided safety harness and lanyards as well as instruction on proper use. Lanyards shall be shock absorbing and connected to anchorage points capable of supporting 5,000 lbs. and minimize the total fall distance. Lanyard anchorage hardware shall be equipped with double-locking (two-action) mechanism. Lanyards that have been subjected to a load shall be removed from service immediately. Harness and lanyards shall be utilized as indicated according to manufacturer's recommendations. Section 13 of this manual, entitled Fall Protection provides more detailed information on this subject.

### *Respiratory Protection*

If engineering controls are not feasible of cannot eliminate respiratory hazards, employees shall be issued respiratory protection if they will be exposed to chemicals or other hazardous agents that can potentially irritate or harm the respiratory system. Employees may consult with their supervisor to request respiratory protection on a voluntary basis if they feel a job-site condition warrants such use. The Job-Site Supervisor or applicable Safety Manager shall select and procure respiratory protection based on the hazard presented and level of worker protection necessary. Section 5.2 of this manual, entitled Respiratory Protection, provides more detailed information on this subject.

### **Training**

Each employee shall receive training upon initial issuance of required PPE. This training will take place during new hire orientation as applicable or as work tasks and / or conditions change that necessitate the use of additional PPE. Employees shall include instruction that identifies:

1. When PPE is required as well as the type required.
2. How to properly wear and remove the PPE.
3. Limitations and performance.
4. Proper care and maintenance.
5. Useful life and proper disposal.

All training shall be documented and signed by the employee on the date it was received. Training shall be repeated if conditions change that requires alternative protection, or the employee is observed using PPE in an improper manner.

# Respiratory Protection

## Section 5.2

### Purpose

The purpose of this program is to protect employees from occupational disease, injury, or illness due to airborne contaminants in the workplace. Where feasible, the Company shall make reasonable efforts to implement engineering controls that will eliminate or reduce airborne hazards. When effective engineering controls cannot be implemented or are otherwise not feasible, personal protective equipment shall be utilized to provide adequate employee protection.

### References

OSHA 1910.134

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

The Safety Manager has overall responsibility for administrating the Respiratory Protection Program. He / She shall have the necessary education, training, and qualifications to fulfill all aspects for this program. This individual is responsible for identifying the hazards in the workplace and having the ultimate decision on the selection and use of respiratory protection by employees. This person shall review this program at least annually for applicability and effectiveness. Lastly, the Safety Manager shall periodically audit projects and office locations to assure these rules have been implemented and enforced.

#### *Employee*

It is the responsibility of the employee to have an awareness of the respiratory protection requirements for his / her work environment. Employees are also responsible for wearing the appropriate respiratory equipment assigned to them by the Company and for maintaining the equipment in a clean and operable condition. Lastly, employees are responsible for abiding by all provisions of this policy and for reporting any equipment deficiency, malfunction, or dangerous condition.

### Definitions

#### *Airline Respirator*

Respirable air is supplied through a small diameter hose from a compressor or compressed air cylinder. The hose is attached to the wearer by a belt or harness. A flow-control valve or orifice is provided to govern the rate of airflow to the wearer. Exhaled air passes to the ambient atmosphere through a valve or opening in the enclosure (face piece, helmet, hood, or suit).

#### *Air Purifying Respirator*

Ambient air, prior to being inhaled, passes through a filter, cartridge, or canister, which removes particles, vapors, gases or a combination of these contaminants. This type of respirator uses a face piece or mouthpiece with nose clamp.

#### *Canister or Cartridge*

A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

#### *Contaminant*

A harmful, irritating, or nuisance material that is foreign to the normal atmosphere.

# Respiratory Protection

## Section 5.2

### *Demand Type*

A Self Contained Breathing Apparatus (SCBA) equipped with a face piece or mouthpiece and noseclip. The demand valve permits oxygen or airflow only during inhalation. Exhaled breath passes to ambient atmosphere through a valve in the face piece.

### *Dust*

A solid, mechanically produced particle with a size ranging from submicroscopic to macroscopic.

### *Escape Respirator*

A respirator intended to be used only for emergency exit.

### *Exhalation Valve*

A device that allows exhaled air to leave a respirator and prevents outside air from entering through the valve.

### *Face piece*

The portion of the respirator that covers the wearer's nose and mouth in a quarter-mask (above the chin) or half-mask (under the chin) face piece or that covers the nose, mouth, and eyes in a full face piece. It is designed to make a gas-tight or particle-tight fit with the face and includes a headband, exhalation valve, and connection for an air-purifying device or respirable gas source, or both.

### *Filter*

A media component used in respirators to remove solid or liquid particles from the inspired air.

### *Filtering Face Piece (Dust Mask)*

A negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.

### *Fit-Test*

The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

### *Fume*

A solid concentration particulate, usually emanating from a vaporized metal.

### *Gas*

An aeriform fluid that is in a gaseous state at standard temperature and pressure.

### *High Efficiency Particulate Air Filter*

A filter that is at least 99.97% efficient in removing monodisperse particles of .3 micrometers in diameter. Filter efficiency ratings of (N100, R100, P100).

### *Immediately Dangerous to Life or Health (IDLH)*

Any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.

### *Inhalation valve*

A device that allows respirable air to enter a respirator and prevents exhaled air from leaving the respirator through the valve.

### *Mist*

A liquid condensation particle.

### *OSHA TWA*

Time-weighted average concentrations that must not be exceeded during any 8-hour work shift of a 40-hour work week as defined OSHA's Permissible Exposure Limits (PEL's) found in 29 CFR 1910.1000) or other supplements.

# Respiratory Protection

## Section 5.2

### *Negative Pressure Respirator*

A respirator in which the air pressure inside the respiratory inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere

### *Particulate Filter Series*

A letter designation for different types of filters. The types are as follows: "N" – restricted to atmospheres free of oil aerosols, "R" – removal of any particle including oil-based liquid aerosol (limited to a single shift – 8 hours), "P" – removal of any particle including oil-based liquid aerosols (NIOSH recommends manufacturers establish time-use limitations on these types of respirators).

### *Permissible Exposure Limit (PEL)*

The legally established time-weighted average (TWA) concentration or ceiling concentration of a contaminant that shall not be exceeded.

### *Physician or other Licensed Health Care Professional (PLHCP)*

An individual whose legally permitted to scope of practice (license, registration, certification) allows them to independently provide, or be delegated the responsibility to provide some or all of the health care services necessary.

### *Positive Pressure Respirator*

A respirator in which the air pressure inside the respiratory inlet covering is positive in relation to the air pressure of the outside atmosphere during exhalation and inhalation.

### *Powered Air Purifying Respirator (PAPR)*

A respirator that contains a blower, stationary or carried by the wearer, which passes through ambient air through an air-purifying component and then supplies purified air to the respirator inlet covering.

### *Pressure Demand Respirator*

A respirator equipped with a face piece only. Positive pressure is maintained in the face piece.

### *Qualitative Fit Test*

A pass / fail test to assess the adequacy of respirator fit that relies on an individual's response to a test agent.

### *Quantative Fit Test*

An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

### *Respirator Inlet Covering*

The portion of the respirator that fits the protective barrier between the user's respiratory tract and an air-purifying device or breathing source, or both. It may be a face piece, helmet, hood, or a mouth piece respirator with nose clamp.

### *Short Term Exposure Limit (STEL)*

A 15-minute TWA exposure, which should not be exceeded at any time during a workday even if the actual 8-hour TWA is within the TWA limitations. Exposures above the TWA up to the STEL should not be longer than 15 minutes and should not occur more than 4 times/day. There should be at least 60 minutes between successive exposures in this range.

### *Self Contained Breathing Apparatus (SCBA)*

The wearer carries a supply of breathing air, oxygen, or oxygen generating material. Normally the SCBA is equipped with a full-face piece, but may be equipped with a quarter or half-face piece, helmet, hood, or mouthpiece and nose clamp.

# Respiratory Protection

## Section 5.2

### *Supplied Air Respirator (SAR)*

Respirable air is supplied through a small diameter hose from a compressor or cascaded tank system. A flow-control valve or orifice is provided to govern the rate of airflow to the user. Exhaled air passes to the ambient atmosphere through a valve or opening in the enclosure (face piece, helmet, hood, or suit).

### *Vapor*

The gaseous state of a substance that is solid or liquid at temperatures and pressures normally encountered.

### **General Requirements**

This program contains safe work practices to protect employees from respiratory hazards. Whenever feasible, engineering controls and or administrative work practices will be implemented to eliminate, reduce, or maintain employee exposures below permissible exposure limits.

Initial determinations of workplace conditions will be made for all potentially hazardous air contaminant exposures to assure the adequacy of this Respiratory Protection Program. If the results indicate that the employee(s) is exposed to concentrations above the permissible limit, the employee shall be removed and the contaminant shall be monitored continuously and measures taken to reduce or eliminate the exposure prior to releasing an employee(s) back into the work environment.

The following general requirements also apply to this section:

1. No employee will be assigned to tasks requiring the use of respiratory protection unless it has been determined they are physically able to perform the work while utilizing respiratory equipment.

2. No employee will be required or permitted to engage in work where a respiratory hazard is present without receiving proper respiratory protective equipment and training in its use, limitations, and safe work practices.
3. Excluding designated, trained, and qualified rescue personnel, no one shall enter an atmosphere that is dangerous to life or health.
4. Respirators shall not be worn when conditions, such as facial hair, absence of dentures, temple pieces on eyewear, etc., prevent a good seal.
5. If an employee wears corrective glasses, ensure that the corrective glasses do not interfere with the seal of the face piece.
6. Voluntary use of air purifying respirators requires employees to read, understand, and sign the Voluntary Respirator Use form, listed as *Appendix B* of this section.

### **Selection**

Respirator selection shall be made according to the guidance of the American National Standards Institute (ANSI) Standard for Respiratory Protection. Respirators will be selected on the basis of the materials and hazards to which the employee(s) will be exposed. The hazards of each task are to be evaluated by the applicable Safety Manager or qualified Supervisor. Based upon this evaluation and review of published permissible exposure limits and respirator performance data, the correct respirator will be specified. Only respirators certified by the National Institute for Occupational Safety and Health (NIOSH) shall be provided or used.

# Respiratory Protection

## Section 5.2

### Types of Respirators

#### *Air Purifying Respirators (APR)*

Remove contaminants from the air and can be used only in **non-IDLH** atmospheres containing sufficient oxygen to sustain life and within the specified concentration limitations of the specific device.

APR's and the contaminants they protect against are as follows:

1. Particulate respirators (dust/Mist) provide protection against particulate matter such as dust, mist, and metal fumes.
2. Chemical cartridge respirators provide protection against light concentrations of certain acid gases, organic vapors, and mercury vapors.
3. Combination, (chemical with particulate) APR's provide protection against both particulate matter and vapors within specified concentrations.
4. APR's do have restrictions, which are as follows:
  - a. They must not be used in oxygen deficient or IDLH atmospheres.
  - b. Half-face chemical cartridge respirators must not be used in atmospheres that exceed 10 times the PEL, or in atmospheres that may contain hazards with poor warning signs, such as undetectable odors.
  - c. Full-face APR's are to be worn when atmospheres are irritating to the eyes, or if humidity or heat cause uncontrollable fogging of safety eyewear, or when a half-face APR cannot provide a complete seal on the employee's face.

#### *Powered Air Purifying Respirators (PAPR)*

PAPR's are battery-powered air purifying respirators that deliver a continuous flow of filtered air to meet the user's needs. PAPR's provide 1,000 times the PEL protection for asbestos, and 25-50 times the PEL protection for other contaminants unless specifically addressed for that substance.

#### *Supplied Air Respirator (SAR)*

Deliver breathing air through a hose connected to the face piece from a suitable compressed air source. The air is delivered in sufficient volume to meet the user's need and will provide protection in IDLH atmospheres regardless of the degree of contamination or oxygen deficiency (below 19.5%). Air is supplied to the respirator by a special air compressor or cascade system or compressed air bottles

#### *Self Contained Breathing Apparatus (SCBA)*

Delivers breathing air through a regulator and hose connected to the face piece from a compressed air tank worn by the user. The air delivered in sufficient volume to meet the user's needs, and will provide in IDLH atmosphere regardless of the degree of contamination or oxygen deficiency.

### Special Requirements

#### *Emergency Situations*

Employees using an SCBA in an emergency situation shall frequently demonstrate their knowledge and ability to rapidly don and use the assigned equipment. The Safety Manager and or Superintendent shall ensure individuals utilizing such emergency equipment receive annual refresher training.

#### *Dangerous Atmospheres*

Procedures relevant to the entry of toxic atmospheres such as: respirator use, the buddy system, and / or toxic atmosphere emergencies outlined in the Confined Space Policy, listed as Section 4.14 of this manual, shall be followed for the purposes of this

# Respiratory Protection

## Section 5.2

program, and shall include the following minimum provisions:

1. Communications will be maintained at all times.
2. Where feasible, a safety harness with lifeline shall be attached to applicable employee and positioned outside or adjacent to dangerous atmosphere within reach of an outside observer.
3. At least one person shall be positioned and appropriately outfitted to initiate rescue, if necessary.
4. Only NIOSH approved full-face pressure demand thirty minute self-contained breathing apparatus, and / or supplied air respirators with auxiliary air supplies shall be used for these types of atmospheres.
5. Escape respirators shall be inspected and subsequently worn by applicable personnel before entering dangerous atmosphere.
6. No one shall enter an atmosphere that is immediately dangerous to life or health, or contains an atmosphere that is equal to or in excess of 10% of the lower explosive limit for the contaminant measured.

### *Immediately Dangerous to Life and Health (IDLH)*

The following requirements shall apply for all IDLH situations:

1. IDLH atmospheres shall only be entered for emergencies involving the rescue of personnel, and then only by designated, trained, and / or qualified personnel.
2. In addition to the rescue team, additional personnel shall be stationed immediately outside the rescue zone.
3. Requires the utilization of an outside observer who must continuously remain at a post outside the rescue zone and maintain contact with rescue personnel.

4. This outside observer shall be provided with the requisite training and instruction for notifying fire, rescue, and medical personnel. The training shall also include instruction on recognizing the signs and symptoms of chemical or contaminant exposure, communications, rescue techniques, and other information necessary to fulfill this role.

5. All anticipated rescue equipment, procedures, and personnel shall be readily available for deployment.

### **Medical Evaluation**

All employees will be required to complete a Respirator Medical Evaluation, listed as *Appendix A* of this policy, prior to being assigned any work task that would require the utilization of respiratory protective equipment. This document shall be completed by each applicable employee and submitted to a Licensed Health Care Provider confidentially to determine if the employee is physically able to wear a respirator. The Company shall make reasonable accommodations to place those employees in alternative work assignments, which have not been medically released to wear a respirator. Reasonable accommodations are dependant upon the availability of alternative work existing.

### **Fit Testing**

Employees required to utilize respiratory protection shall receive a fit test prior to the commencement of work activities in accordance with the manufacturer's recommendations and / or regulatory requirements.

### *Respirator Selection*

The first step in the fit testing process is to select a respirator that best fits the employee and is comfortable. The selection process is as follows:

1. The Company shall provide a range of respirator sizes that employees will be afforded to don and assess comfort and seal.

# Respiratory Protection

## Section 5.2

2. The employee shall receive instruction on how to properly wear and remove the equipment as well as adjusting tensioning straps.
3. Each employee shall be instructed and understand that a comfortable fit is integral in providing adequate protection.
4. The employee shall hold each face piece to the face and eliminate those that are obviously not a comfortable fit.
5. Typically, respirator selection shall begin with a half-mask. If a comfortable fit cannot be found with a half-mask, the subject shall try a full-face respirator.
6. The wearer should wear the selected respirator for a short period of time to assess overall comfort.
7. If an employee is not familiar with using a particular respirator, they shall be directed to wear the equipment several times, adjust the tensioning straps, until proficiency is demonstrated.
8. The employee shall conduct the conventional negative and positive-pressure tests as described in this section. Before conducting these tests, the subject shall be instructed to seat or seal the respirator by moving the head from side-to-side, up and down, moving the jaw, and breathing normally.
9. At this point, the subject is ready for a qualitative fit test.
10. If the employee successfully passes the test, it shall be recorded on the Fit-Test Record, listed as *Appendix C* of this section.
11. If the employee does not pass the test, they shall be given an opportunity to select an alternative respirator and subsequently re-test.

### *Negative and Positive Pressure Tests*

As stated in item #8 above, the following tests shall be performed to ensure the respirator forms a satisfactory seal to the subject's face. The tests shall be performed during the initial fit testing procedure as well as in the field prior to each use.

#### Negative Pressure Test

1. Close off the inlet orifice with thumb or palm (flat). Some equipment will allow you to perform this test before attaching filter cartridges.
2. Gently inhale so that the face piece collapses slightly and hold for 10 seconds.

If the face piece remains slightly collapsed and no inward leakage is detected, the respirator is generally tight enough. This test can only be conducted with tight fitting face piece respirators.

#### Positive Pressure Test

1. Seal off the face exhalation valve with thumbs or palms.
2. Gently exhale into the face piece building a slight pressure. A successful test would be achieved if there were no detectable seal leakage. If you do detect leakage, readjust the face piece and try again. If a seal cannot be achieved, notify your supervisor immediately.

### *Qualitative Fit Testing Protocol*

Once employees have selected an appropriate respirator based on the abovementioned procedures, the employee shall don the selected equipment, adjust appropriately, and be subjected to a qualitative fit test utilizing a suitable testing agent easily detectable by odor or taste. The Company typically utilizes Irritant Smoke or Isoamyl Acetate to complete such tests. The requirements and procedures for conducting such tests are listed below.

# Respiratory Protection

## Section 5.2

### *Irritant Smoke Protocol*

Prior to the test, the employee shall be allowed to smell a weak concentration of the irritant smoke to become familiarized with its characteristic odor. The remainder of the procedure is as follows:

1. The employee shall don the respirator for several minutes prior to the test.
  2. The individual conducting such test shall review the testing protocol with the employee.
  3. The employee shall perform both a negative and positive pressure test and assure a proper seal.
  4. The employee shall be instructed to keep eyes closed during the test, as the smoke can be irritating to the eyes.
  5. The test conductor shall direct a stream of irritant smoke from the tube towards the face area of the employee. The tester should start approximately 1 foot away from the subject and move gradually closer to the face deploying smoke around the perimeter of the mask.
  6. The following exercises shall be performed while the smoke is challenging the respirator seal. Each of the following should be conducted for roughly one minute:
    - a. Normal breathing.
    - b. Deep breathing.
    - c. Turning head from side-to-side. Alert the employee to not bump the respirator on the shoulders. Have the employee inhale when their head is at either side.
    - d. Instruct subject to nod head up and down. Alert the employee not to bump the respirator on the chest. Have the employee inhale when the head is in the up position.
- e. Have the employee recite the "Rainbow Passage", listed as *Appendix D* of this section.
  - f. If the irritant smoke produces an involuntary reaction (cough) by the employee, the test indicator shall stop the test. In this case, the test respirator is rejected and another respirator shall be selected.
  - g. Each employee passing the smoke test without evidence of a response shall be given a sensitivity check of the smoke from the same tube to determine whether they react to the smoke. Failure to evoke a response shall void the test.
  - h. The irritant smoke applications shall be performed in an area with sufficient exhaust ventilation.

Respirators successfully tested under this protocol may be used in contaminated atmospheres up to 10 times the Permissible Exposure Limit of the contaminant(s).

### *Irritant Smoke Protocol for Nuisance Dust Respirators*

This testing protocol is for nuisance style respirators only. Prior to the test, the employee shall be allowed to smell a weak concentration of the irritant smoke to become familiarized with its characteristic odor. The remainder of the procedure is as follows:

1. The employee shall don the respirator for several minutes prior to the test.
2. The individual conducting such test shall review the testing protocol with the employee.
3. The employee shall perform both a negative and positive pressure test and assure a proper seal.
4. The employee shall be instructed to keep eyes closed during the test, as the smoke can be irritating to the eyes.

# Respiratory Protection

## Section 5.2

5. The test conductor shall direct a small stream of irritant smoke from the tube challenging the face piece to the seal area on the employee while avoiding the surface of the respirator during delivery of the smoke.
6. Areas to challenge include: either side of the nose, under the chin, and any place where irregularities of the skin may appear.
7. The following exercises shall be performed by the subject while the smoke is challenging the respirator seal. Each of the following should be conducted for roughly one minute:
  - a. Normal breathing.
  - b. Deep breathing.
  - c. Turning head from side-to-side. Alert the employee to not bump the respirator on the shoulders. Have the employee inhale when their head is at either side.
  - d. Instruct subject to nod head up and down. Alert the employee not to bump the respirator on the chest. Have the employee inhale when the head is in the up position.
  - e. Have employee recite the "Rainbow Passage".
  - f. If the irritant smoke produces an involuntary reaction (cough) by the employee, the test conductor shall stop the test. In this case, the tester has allowed smoke to contact the medium of the respirator. Testers must be cognizant to clear excess smoke from around the face before the employee inhales.
  - g. Each employee passing the smoke test without evidence of a smoke trail away from the nose or chin areas will have demonstrated an adequate fit.

### *Isoamyl Acetate Testing Protocol*

For the purposes of this test, the following requirements must be met.

1. The room or area being used for fit testing shall have adequate ventilation to avoid room contamination.
2. Each respirator used for respiratory selection and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.
3. After selecting, donning, and properly adjusting a respirator, the employee shall wear it to the fit testing area. The subject shall wear the respirator for several minutes prior to the test being conducted. The room shall be separate from the room used for odor threshold screening and equipment selection and shall be well ventilated.
4. A copy of the rainbow passage, or other comparable message, shall be available in the testing chamber or area for subjects to read.
5. The following exercises shall be performed by the subject while the Isoamyl Acetate is challenging the respirator seal. All exercises shall be conducted for a period of at least one minute.
  - a. Normal breathing.
  - b. Deep breathing.
  - c. Turning head from side-to-side. Alert the employee to not bump the respirator on the shoulders. Have the employee inhale when their head is at either side.
  - d. Instruct subject to nod head up and down. Alert the employee not to bump the respirator on the chest. Have the employee inhale when the head is in the up position.
  - e. Have employee recite the "Rainbow Passage".

# Respiratory Protection

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6. The tester shall utilize respules of Isoamyl Acetate to create an odorous vapor cloud during the test. Following the instructions of the manufacturer, the swab should be held approximately 2" to 3" from the seal around the subject's face.
  7. If at any time during the test, the subject detects the banana-like odor of the Isoamyl Acetate, he / she shall quickly exit the testing area to avoid olfactory fatigue.
  8. Upon returning to the selection room or area, the subject shall be removed and don another respirator and return to the testing area for additional testing. This process should continue until a respirator that fits well has been selected. Should the odor sensitivity test fail, the subject shall wait about five minutes before retesting.
  9. Full face respirators shall be made available as part of the selection process if an individual cannot be fitted with a half face respirator
- Rubber or elastomer parts are to be inspected for pliability and signs of deterioration.
4. Routinely used respirators must be cleaned and disinfected daily or more frequently as conditions warrant.
  5. A qualified person using only parts designed for the equipment being used shall perform replacement or repairs. Reducing or admission valves or regulators must be returned to a trained technician for adjustment or repair.
  6. After inspection, cleaning, and / or repair, respirators are to be stored in a suitable location that will protect the equipment from dust, extreme heat or cold, excessive moisture, or damaging chemicals. Respirators are not to be stored in gang boxes or lockers unless they are in carrying cases or cartons.
  7. Disposable respirators shall be stored properly or disposed of properly when not in use.

### Maintenance and Care of Respirators

The overall responsibility and care of respirators is the user's responsibility. The company shall provide cleaning agents and clean storage locations for respiratory equipment. The user is responsible to assure the following items are completed to maintain the respiratory equipment's effectiveness:

1. APR's shall be inspected before and after each use. Respirators not used routinely must be inspected before each use and at least monthly to ensure satisfactory operating condition.
2. Self-contained breathing apparatus (SCBA's) must be inspected monthly. Air cylinders must be fully charged per the manufacturer's recommendations. Regulator and warning devices must function properly.
3. Respirator inspection shall include: checking for the tightness of connections, condition of the face piece, headbands, valves, connecting tubes, and cartridges.

### Training

All employees shall receive respiratory protection training whenever the work tasks require such use. This training shall take place prior to the commencement of any work activity. At a minimum, this training shall consist of:

1. An explanation of why engineering controls are not feasible.
2. Instruction on respirator selection, use, care, and maintenance of the equipment.
3. Fitting instructions, including:
  - a. Demonstrations and practice in wearing respiratory equipment.
  - b. Adjusting the equipment for a proper fit.
  - c. Fit testing the face piece to ensure a proper seal.

# Respiratory Protection

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4. Awareness of the capabilities and limitations of the respiratory protective equipment they will be using, including how to determine when the equipment is expended or out of date.
5. Instruction on the hazardous chemicals or agents in the workplace that requires the use of respiratory protection. This shall include a review of applicable material safety data sheets (MSDS's) or other materials.
6. An explanation that employees will be periodically evaluated to assess their ability to properly use the respiratory equipment assigned to them.

Retraining shall be conducted at least annually or more frequently if observations demonstrate that an employee does not fully understand safe work practices with respect to this Respiratory Protection Program or if conditions change that require additional training.

### Appendices

Appendix A – Respirator Medical Evaluation

Appendix B – Voluntary Respirator Use

Appendix C – Fit Test Record

Appendix D – Rainbow Passage

EMPLOYER: PLEASE FILL OUT THE FOLLOWING INFORMATION

Company's Name: Job-Site Name & No.
Address: Job-Site Address:
Co. Phone: Fax: Site Phone: Fax:
Employee's Name:
Employee's SSN:

Check Type of Respirator(s) to be Used (Check All That Apply)
Extent of Usage (Check All That Apply)
Expected Physical Effort Required (Check All That Apply)
Extent of Usage (Check All That Apply)
Special Work Conditions (Check All That Apply)
Other(s):
Questionnaire Will Be:
EVALUATION AUTHORIZATION BY: DATE:

NOTE TO EMPLOYEE AND EMPLOYER: DO NOT WRITE BELOW THIS LINE—FOR USE BY THE PLHCP ONLY

PLHCP WRITTEN STATEMENT FOR THE USE OF RESPIRATORS

This report may contain confidential medical information and is intended for the designated employer contact only. The American with Disabilities Act (ADA) imposes very strict limitation on the use of information obtained during physical examination of qualified individuals with disabilities. All information must be collected and maintained on separate forms, in separate files, and must be treated as a confidential medical record. With the following exceptions:

- Supervisors and Managers may be informed about necessary restrictions on the work or duties of an employee and necessary accommodations.
First Aid and Safety Personnel may be informed, when appropriate, if the disability might require emergency treatment.

Based upon my findings, I have determined that this individual (Check All That Apply)

- Further Testing/Evaluation is Required
Class I – No Restrictions on Respirator Use
Class II – Some Specific Use Restrictions Emergency Response or Escape Only Other:
Class III – Respirator Use is NOT PERMITTED

Physician or other Licensed Healthcare Professional (Check All That Apply)

- The above individual HAS been examined for respirator fitness in accordance with 29 CFR 1910.134. This limited evaluation is specific to respirator use only.
I HAVE NOT examined the above individual for respirator fitness. The employee's medical evaluation consisted of a review of OSHA's Medical Evaluation Questionnaire in Appendix C Part A Section 2.
In accordance with specific OSHA requirements, I have informed the above named individual of any positive results of this evaluation regarding respirator or respirator use or further evaluation.

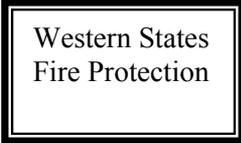
PLHCP's Signature

PLHCP's Name Printed

Physician's License Number (Optional in Most States)
04/29/02

Date of Evaluation

Expiration Date



**PART A-SECTION 1**

**MUST BE FILLED OUT ON EACH PAGE**

Name (last, first, middle)		Social Security Number:	Today's Date:
Age (to nearest year):	Sex : (check one) <input type="checkbox"/> Male <input type="checkbox"/> Female	Job Title:	
Home Telephone:		Home Telephone:	
Height: _____ feet _____ inches		Weight: _____ lbs.	

Can you read?  Yes  No

Your employer must allow you to answer this questionnaire during normal working hours at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers. This questionnaire will be administered and reviewed by the health care professionals at: **Dickinson Occupational Clinic, 1711 S. Stephenson Avenue, Suite 200, Iron Mountain, MI 49801-4696, 906-779-7111 or 800-262-4155, Fax: 906-779-7115**

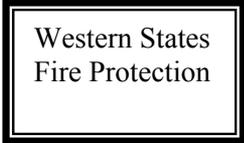
Please answer the following questions:

1. Do you know how to contact the health care professional who will review this questionnaire?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Indicate the type of respirator you will use (you can select more than one category): N, R, or P disposable respirator (filter-mask, non-cartridge type only). (Specify) _____ Other type (for example, half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus: (Specify) _____		
3. Have you ever worn a respirator? If yes, what type(s): _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**PART A-SECTION 2**

If yes, please comment.

1. Do you currently smoke tobacco or have you smoked tobacco in the last month?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
2. Have you ever had the following conditions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
a. Seizures (fits)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
b. Diabetes (sugar disease)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
c. Allergic reactions that interfere with your breathing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
d. Claustrophobia (fear of closed-in places)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
e. Trouble smelling odors?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
<b>3. PULMONARY OR LUNG PROBLEMS: Have you ever had the following pulmonary or lung problems?</b>			<b>If yes, please comment.</b>
a. Asbestosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
b. Asthma?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
c. Chronic bronchitis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
d. Emphysema?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
e. Pneumonia?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
f. Tuberculosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
g. Silicosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
h. Pneumothorax (collapsed lung)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
i. Lung cancer?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
j. Broken ribs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
k. Any chest injuries or surgeries?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
l. Any other lung problem that you've been told about?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
<b>4. DO YOU CURRENTLY HAVE ANY OF THE FOLLOWING SYMPTOMS OF PULMONARY OR LUNG ILLNESS?</b>			<b>If yes, please comment.</b>
a. Shortness of breath?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
c. Shortness of breath when walking with other people at an ordinary pace on level ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
d. Have to stop for breath when walking at your own pace on level ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
e. Shortness of breath when washing or dressing yourself?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
f. Shortness of breath that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
g. Coughing that produces phlegm (thick sputum)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
h. Coughing that wakes you early in the morning?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
i. Coughing that occurs mostly when you are lying down?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
j. Coughing up blood in the last month?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
k. Wheezing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
l. Wheezing that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
m. Chest pain when you breathe deeply?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
n. Any other symptoms that you think may be related to lung problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	



**MUST BE FILLED OUT ON EACH PAGE**

Name (last, first, middle)		Social Security Number:		Today's Date:
<b>5. CARDIOVASCULAR OR HEART PROBLEMS:(Have you ever had any of the following cardiovascular/heart problems)?</b>				<b>If yes, please comment.</b>
a. Heart attack?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Stroke?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Angina?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Heart failure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Swelling in your legs or feet (not caused by walking)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Heart arrhythmia? (Heart beating irregularly)	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
g. High blood pressure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
h. Any other heart problem that you've been told about?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>6. HAVE YOU EVER HAD ANY OF THE FOLLOWING CARDIOVASCULAR OR HEART SYMPTOMS?</b>				<b>If yes, please comment.</b>
a. Frequent pain or tightness in your chest?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Frequent pain or tightness in your chest during physical activity?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Pain or tightness in your chest that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. In the past two years, have you noticed your heart skipping or missing a beat?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Heartburn or indigestion that is not related to eating?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Any other symptoms that you think may be related to heart or circulation problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>7. CURRENT MEDICATIONS: Do you currently take medications for any of the following problems?</b>				<b>If yes, please comment.</b>
a. Breathing or lung problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Heart trouble?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Blood pressure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Seizures?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Any other medications for any reason (including over-the-counter medications)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>8. PROBLEMS WHILE USING A RESPIRATOR</b>				<b>If yes, please comment.</b>
Have you ever had any of the following problems using a respirator? If you have never used one, check this box <input type="checkbox"/> and proceed to question 9.				
a. Eye irritation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Skin allergies or rashes?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Anxiety?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. General weakness or fatigue?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Any other problems that interfere with your use of a respirator?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>9. Would you like to discuss specific issues with the healthcare professional who will review this questionnaire?</b>				
<input type="checkbox"/> Yes				<input type="checkbox"/> No
<b>Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.</b>				
<b>VISION PROBLEMS:</b>				<b>If yes, please comment.</b>
10. Have you every lost vision in either eye (temporarily or permanently)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
11. Do you currently have any of the following vision problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Wear contact lenses?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Wear glasses?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Color blindness?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Any other eye or vision problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>HEARING PROBLEMS:</b>				<b>If yes, please comment.</b>
12. Have you ever had an injury to your ears, including a broken eardrum?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
13. Do you currently have any of the following hearing problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Do you currently have difficulty hearing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Do you currently wear a hearing aide?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Do you currently have any other hearing or ear problem?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>MUSCULOSKELETAL PROBLEMS:</b>				<b>If yes, please comment.</b>
14. Have you ever had a back injury?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
15. Do you currently have any of the following muscularskeletal problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Weakness in either of your arms, hands, legs, or feet?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Back pain?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Difficulty fully moving your arms and legs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Pain or stiffness when you lean forward or backward at the waist?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Difficulty fully moving your head up or down?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Difficulty fully moving your head from side to side?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
g. Difficulty bending at your knees?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
h. Difficulty squatting to the ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
i. Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
j. Any other muscle or skeletal problem that interfered with using a respirator?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

**Appendix B  
Voluntary Respirator Use**

**Information for Employees Using Respirators  
When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by the OSHA standards. If your employer provides respirators for your voluntary use, you must take certain precautions to ensure that the respirator does not present a hazard.

**When using a respirator you should do the following:**

1. Read and follow 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. 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 and smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
5. If you have trouble with your respirator, take it to your supervisor for inspection and possible replacement.

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Employee Name: \_\_\_\_\_



**Appendix D  
Rainbow Passage**

A copy of the following rainbow passage can be taped to the inside of the test chamber, or posted for subjects to read during the fit testing steps of either fit testing protocol.

**Rainbow Passage**

**When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a person looks for something beyond their reach, their friends say they are looking for the pot of gold at the end of the rainbow.**

# Fire Prevention Plan

## Section 6.1

### Purpose

This Fire Prevention Plan (FPP) is in place at this company to control and reduce the possibility of fire and to specify the type of equipment to use in case of fire. This plan addresses the following issues:

1. Major workplace fire hazards and proper handling and storage procedures for hazardous materials.
2. Potential ignition sources and their control.
3. The type of fire protection equipment necessary to control each major hazard.
4. Procedures to control accumulations of flammable and combustible waste materials.

The plan is closely tied to the Emergency Action Plan where procedures are described for emergency evacuation procedures and exit route assignments, procedures to account for all employees after emergency evacuation has been completed, and rescue and medical duties for those employees who perform them. Please see the Emergency Action Plan for this information.

### References

OSHA 1926.150; 1910.38 & 1910.155

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

### *Employees*

Shall have read and understand their responsibilities with respect to fire prevention in the work environment.

### Fire Hazards

Fire can be represented by a simple equation: Fire = Ignition Source + Fuel + Oxygen. Without any one of these three elements, a fire cannot start. Likewise, during a fire, if you take away any one of these three elements, you can successfully put out a fire. It is the company's intent to prevent these three elements from reacting to produce a fire.

Fire prevention measures involving proper handling and storage of hazardous materials include:

1. Objects shall be stacked orderly and solidly, floors or shelves shall not be overloaded.
2. Materials stored indoors shall not be placed at least 36 inches below sprinkler deflectors.
3. Breakables and heavy objects shall be stored on low shelves. Objects shall not be hung over shelves causing a falling object hazard.
4. Fire extinguishers, electricals, vents, or exits shall not be blocked.
5. Flammables and combustibles shall be separated by their properties.
6. Corrosives shall be stored away from flammables.
7. Flammables shall be stored in approved containers.
8. Combustible material stored outside shall be piled no higher than 20 feet.
9. Report leaks of flammables or combustibles to your supervisor immediately upon observation.

# Fire Prevention Plan

## Section 6.1

10. Eating or smoking around flammables and combustibles is prohibited
11. Properly dispose of unneeded flammables and combustible.
12. When a flammable is spilled, clean up with approved spill supplies
13. Filling gas cans on a pick-up bed is prohibited.
2. Class B - flammable liquids, gases, and greases make up this class and the extinguishing agent is carbon dioxide or dry chemicals.
3. Class C - is an electrical fire. Carbon dioxide or dry chemicals extinguish this fire.
4. Class D - this fire is caused by combustible metals. Special techniques rather than fire extinguishers put this fire out.

Prevent the accumulation of flammable and combustible waste materials.

1. Oil soaked rags must be in self-closing metal containers and emptied on a daily basis.
2. Limit inventory of flammable and combustible materials to the minimum.
3. Substitute a less hazardous substance when possible.
4. A fire watch shall be available to sound an alarm or operate a fire extinguisher.

### *Potential Ignition Sources*

Flammable or combustible materials and other fuel sources may not ignite on their own without an external source of ignition. Typical ignition sources involve heat. A number of ignition sources can be found in industry: electrical, heating, and welding / cutting equipment; open flames; sparks; smoking; hot surfaces like boilers and furnaces; hot substances like molten metal; sparks and static; friction; and bombs and arson. Other ignition sources include lightning, static, spontaneous ignition, heat-producing chemical reactions, and radiant heat.

### **Fire Protection Equipment**

The National Fire Protection Association (NFPA) has classified fires into four types:

1. Class A - this common fire involves ordinary materials like wood, paper, rubber, and plastics. The extinguishing agent is water or dry chemicals.

Use the appropriate fire extinguisher only on fires for which that fire extinguisher is designed. Using the wrong agent on a fire may increase the intensity of the fire.

Normally, 20lb. ABC fire extinguishers shall be provided on each project. All extinguishers shall be conspicuously located. Each extinguisher will be subject to a monthly visual inspection by a Company employee and inspected annually by a certified fire extinguisher inspection service, or when they have been discharged or damaged.

A minimum of one 20 lb. ABC extinguisher shall be located within 35 ft. of all hot work operation and / or heat-producing equipment. A minimum of one 5 lb. ABC extinguisher shall be located in the cab and / or operator station of all cranes and any trucks over 10,000 lbs.

Other types of fire protection equipment or systems can be broken into four categories:

1. Portable fire suppression equipment including standpipe and hose systems.
2. Fixed fire suppression equipment including: automatic sprinkler systems and fixed extinguishing systems.
3. Fire detection systems.
4. Employee alarm systems including: manual pull box alarms, public address systems, radio, or telephone.

# Fire Prevention Plan

## Section 6.1

### Maintenance of Equipment/Systems

Manufacturer's recommendations should be followed to assure proper maintenance procedures. Fire extinguishers require maintenance, testing, and monthly visual inspections. In many cases, a qualified contractor performs the actual servicing, maintenance, and testing on alarm systems, fire detection systems, and fixed fire suppression equipment.

### Housekeeping Procedures

The company controls accumulations of flammable and combustible waste materials and residues so that they do not contribute to a fire. The following procedures have been developed to eliminate or minimize the risk of fire due to improperly stored or disposed of materials.

1. Storing oily rags in specially designed containers.
2. Keeping the floors free of paper or saw dust.
3. Storing all flammables in fire cabinets when not in use.
4. Limiting inventory of flammable and combustible materials to the minimum of the processes.
5. Substitute a less hazardous substance when possible.
6. Electrical wiring and equipment maintenance.
7. Sweeping up combustibles before welding.
8. Having a fire watch is available to sound an alarm or operate a fire extinguisher.
9. Accumulations are removed from the workplace on a daily (24-hour) basis.

### Fire Protection Equipment

The Supervisor provides training for each employee who is required to use fire protection

equipment. Employees shall not use fire protection equipment without appropriate training. Training, before an individual is assigned responsibility to fight a fire, includes:

1. Types of fires.
2. Types of fire prevention equipment.
3. Location of fire prevention equipment.
4. How to use fire prevention equipment.
5. Limitations of fire prevention equipment.
6. Proper care and maintenance of assigned fire prevention equipment.

Employees must demonstrate an understanding of the training and the ability to use the equipment properly before they are allowed to perform work requiring the use of the equipment.

If the Supervisor has reason to believe an employee does not have the understanding or skill required the employee must be retrained. The Supervisor certifies in writing that the employee has received and understands the fire protection equipment training.

### Training

#### *Fire Prevention Plan*

At the time of a fire, employees should know what type of evacuation is necessary and what their role is in carrying out the plan. In cases where the fire is large, total and immediate evacuation of all employees is necessary. In smaller fires, a partial evacuation of nonessential employees with a delayed evacuation of others may be necessary for continued operation.

Training, conducted on initial assignment, includes:

1. Fire hazards to which an employee is exposed.
2. What to do if employee discovers a fire.

# Fire Prevention Plan

## Section 6.1

3. Demonstration of alarm, if more than one type exists.
4. How to recognize fire exits.
5. Evacuation routes.
6. Assisting employees with disabilities.
7. Measures to contain fire.
8. Head count procedures (see EAP for details).
9. Return to building after the "all-clear" signal.

# Flammable and Combustible Liquids

## Section 6.2

### Purpose

This Flammable & Combustible Liquids Program has been written to protect employees who handle, store, and use or work around flammable and combustible liquids. It is intended for the information here to facilitate proper design, installation, storage, usage, and handling measures necessary to prevent fire and explosion.

### References

OSHA 1926.152, 1910.106

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of flammable and combustible liquids in the work environment.

### Control Measures

#### *Work Practice Controls*

1. Open flames and smoking in flammable or combustible liquid storage areas is prohibited.
2. Materials that will react with water shall not be stored in the same room with flammable or combustible liquids.

3. Flammable and combustible liquids from containers over 30 gallons shall be dispensed by approved pump or self-closing faucet.
4. Storage areas & grounds shall be free of weeds, debris, and other combustible material not necessary to the storage.
5. Precautions shall be made to prevent the ignition of flammable vapors. Sources of ignition include, but are not limited to: open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, and mechanical sparks; spontaneous ignition, including heat-producing chemical reactions; and radiant heat.
6. Aisles shall be kept adequate and unobstructed so that personnel and fire protection equipment can reach flammable or combustible liquid use, handling, and storage areas.
7. Class I liquids shall be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.
8. The draw or transfer of flammable or combustible liquids into vessels, containers, or portable tanks within a building shall only be conducted through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self-closing valve. Transfer shall not be conducted by means of air pressure on the container or portable tanks.
9. Class I liquids shall be drawn into containers only when the nozzle and container are electrically interconnected. The metallic floorplate on which the container stands while filling shall be electrically connected to the fill stem or the fill stem shall be bonded to the container during filling operations by means of a bond wire.

# Flammable and Combustible Liquids

## Section 6.2

### Protective Equipment

Refer to our written Personal Protective Equipment Program for information on PPE when handling flammable and combustible liquids.

### Storage Procedures

#### *Indoor Storage*

1. In a building where there is a room used for the storage of flammable or combustible liquids in excess of 60 gallons, there shall be a 20 lb. ABC extinguisher stored not more than 10 feet from the door.
2. In every inside storage room there shall be maintained a 3 feet wide clear aisle way. Containers over 30 gallon capacity shall not be stacked one upon the other.
3. Quantities of flammable / combustible liquids stored inside a building in excess of 25 gallons and not in a designed storage room shall be stored in an acceptable cabinet. Cabinets shall be labeled "Flammable-Keep Fire Away". There shall not be more than 60 gallons of flammable, or 120 gallons on combustible liquids stored in an individual cabinet. In addition, not more than three cabinets shall be stored in a single storage area.

#### *Outdoor Storage*

1. At least one 20 lb. ABC extinguisher shall be located at least 25 ft., but not more than 75 ft., from any outdoor flammable / combustible liquid storage area.
2. Storage tanks shall have automatic shut off on dispensing hoses, without a latch-open device.
3. Storage tanks shall have some form of impact protection from vehicular traffic.
4. Containers / Drums shall not exceed 1100 gallons in any one pile. Groups or piles of containers / drums shall be separated by a 5 ft. clearance.

5. Portable tanks, grouped together, having a combined capacity in excess of 2200 gallons shall be separated by a 5 ft. clear area. Individual tanks in excess of 1100 gallons shall also be separated by 5 ft.
6. Within 200 ft. of each portable tank, there shall be 12 ft. wide access lane to allow the approach of fire-control equipment.
7. Areas used for fueling, servicing fuel systems, or dispensing flammable / combustible liquids shall have signage conspicuously located prohibiting smoking.
8. Storage areas shall be surrounded by a curb or earth dike at least 1 ft high or otherwise graded to divert spills away from buildings or other exposures. Drainage shall terminate at a safe location with provisions for draining off accumulations of rain water or spills of flammable / combustible liquids.
9. Storage tanks shall be grounded and vented.

### Emergency Situations

The emergency / accident response procedures can be found in the Emergency Action Plan (EAP) program.

### Inspections

1. Periodically inspect and test fire protection facilities to ensure facilities are in satisfactory operating condition and will serve their purpose in emergency.
2. Before hot work operations, an individual in charge inspects the hot work area to ensure it is safe for the work and that safe procedures will be followed for the work specified.
3. Grounding and bonding--Before handling containers and using tanks, check for proper grounding and bonding of containers and tanks where necessary.

# Flammable and Combustible Liquids

## Section 6.2

### Labeling and Posting

1. Post "Flammable - Keep Fire Away" on storage cabinets for flammable and combustible portable containers.
2. Post signs prohibiting smoking in areas used for fueling, servicing fuel systems for internal combustion engines, and receiving or dispensing of flammable or combustible liquids.
3. Conspicuously post "No Smoking" signs where hazard from flammable liquids vapors is normally present.

### Training

An employee may not use, handle, or store flammable or combustible liquids until he/she has successfully completed the company's training program under the Flammable & Combustible Liquids Program. This includes all new employees, regardless of claimed previous experience. Training is conducted annually thereafter.

# Liquid Petroleum Gas

## Section 6.3

### Purpose

Liquefied petroleum (LP) gases are flammable, nontoxic gases. The Company is dedicated to the protection of employees who store, handle, use, or work around LP gas. This written LP Gas Program is intended to help protect the safety and health of our employees.

### References

OSHA 1926.153, 1910.110

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of liquid petroleum gas in the work environment.

### Storage and Handling Procedures

Containers shall be upright and upon firm foundations or otherwise secured. When containers and regulating equipment are installed outside buildings or structures, special emphasis shall be made regarding settling. The outlet piping shall be guarded by a flexible connection or special fitting.

The storage of LPG within buildings is prohibited. The only time LPG can be kept inside is when it is "connected for use".

Storage locations shall be provided with at least one 20lb ABC portable fire extinguisher.

The storage of LPG awaiting use outside of buildings shall be located from the nearest building in accordance with the following:

Quantity of LPG Stored	Distance
500 or less	0
501 to 6,000	10
6,001 to 10,000	20
Over 10,000	25

Precaution shall be taken to prevent vehicular damage to LPG systems or containers.

### Fire Prevention and Protection

Because LP gas is flammable, fire and explosion are two important hazards to prevent. This is done by:

1. Eliminating sources of ignition,
2. Properly grounding equipment, and
3. Maintaining electrical equipment and wiring to prevent short circuits.

Refer to the Fire Prevention Plan, listed as Section 6.1, for more information.

### Training

Under no circumstances may an employee install, remove, operate, and maintain LP gas containers, equipment, or systems until he / she has successfully completed training.

Re-training shall be conducted annually, or periodically thereafter.

# Temporary Heating Devices

## Section 6.4

### Purpose

The purpose of this procedure is to establish safe work practices when using temporary heating devices.

### References

OSHA 1926.154

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of all heating devices in the work environment.

### Ventilation

Fresh air shall be provided in sufficient quantities to maintain the health and safety of workers. Where natural means of fresh air supply is inadequate, mechanical ventilation shall be provided.

When heaters are used in confined spaces, special care shall be taken to provide sufficient ventilation in order to ensure proper combustion, maintain the health and safety of workers, and limit temperature rise in the area.

All combustion engine temporary heating devices shall be monitored for carbon monoxide during the time they are in operation.

### Clearance and Mounting

Temporary heating devices shall be installed to provide clearance to combustible material not less than the amount shown below:

Heating Appliances	Minimum clearance, (inches)		
	Sides	Rear	Chimney Connector
Room Heater, Circulating Type	12	12	18
Room Heater, Radiant Type	36	36	18

Heaters not suitable for use on wood floors shall not be set directly upon them or other combustible materials. When such heaters are used, they shall rest on suitable heating insulating material or at least 1-inch concrete or equivalent and extend beyond the heater 2 feet or more in all directions.

Heaters used in the vicinity of combustible tarpaulins, canvas, or similar coverings shall be located at least 10 feet from the coverings. The coverings shall be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.

### Stability

Heaters, when in use, shall be set horizontally level, unless otherwise permitted by the manufacturer's markings.

### Solid Fuel Salamanders

Solid fuel salamanders are prohibited in buildings and on scaffolds.

### Oil-Fired Heaters

Flammable liquid-fired heaters shall be equipped with a primary safety control to stop the flow of fuel in the event of flame failure. Barometric or gravity oil feed shall not be considered a primary safety control.

Heaters designed for barometric or gravity oil feed shall be only with the integral tanks.

# Temporary Heating Devices

## Section 6.4

Heaters specifically designed and approved for use with separate supply tanks may be directly connected for gravity feed, or an automatic pump, from a supply tank.

### **Training**

All applicable employees shall receive general instruction on this program as necessary.

# Signs, Signals, and Barricades

## Section 7.1

### Purpose

To establish and implement requirements associated with the safe use of signs, signals, and barricades in the work environment.

### References

OSHA 1926.200

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of signs, signals, and barricades in the work environment.

### General Requirements

All signs, tags, signals or barricades are posted or erected to warn both you and the public of potentially hazardous conditions. Obey them.

Do not remove or destroy any signs, tags, signals or barricades unless you have the permission of the employee who placed it, your supervisor, or are following an established procedure.

Signs and symbols required by this section shall be visible at all times when work is being performed, and shall be removed or covered promptly when the hazards no longer exist.

### *Danger Signs*

Danger signs shall be used only where an immediate hazard exists. Danger signs shall have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.



### *Caution Signs*

Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices. Caution signs shall have yellow as the predominating color; black upper panel and borders; yellow lettering of "caution" on the black panel; and the lower yellow panel for additional sign wording. Black lettering shall be used for additional wording.



### **Danger / Caution Tape**

#### *Danger Tape*

Danger tape shall temporarily be used to warn employees of immediate hazards in the work environment. This notification shall not take the place of permanent placards. Danger tape shall have black lettering with a red background. Unauthorized employees shall not remove or enter an area barricaded with danger tape.

#### *Caution Tape*

Caution tape shall temporarily be used to warn employees of potential hazards or to caution against unsafe practices. This notification shall not take the place of permanent placards.

# Signs, Signals, and Barricades

## Section 7.1

Caution tape shall have black lettering with a yellow background. Unauthorized employees shall not remove caution tape, but may enter an area barricaded with caution tape when it has been determined that the area has been evaluated for potential hazards & is safe to enter.

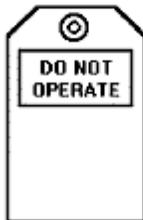
All danger and caution tape shall be removed from the barricaded area when the immediate or potential hazard no longer exists.

### *Exit Signs*

Every exit sign shall have the word "exit" in plainly legible letters not less than 6 inches high, with the principal strokes of letters not less than three-fourths-inch wide. Every exit sign shall be distinctive in color and shall provide contrast with decorations, interior finish, or other signs.

### *Accident Prevention Tags*

Accident prevention tags shall be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. They shall not be used in place of, or as a substitute for, accident prevention signs. Specifications for accident prevention tags similar to those in below shall apply.



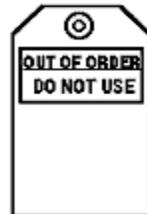
White tag----  
white letters  
on red square



White tag----  
white letters  
on red oval  
with a black square



Yellow tag----  
yellow letters  
on a black  
background



White tag----  
white letters  
on black  
background

### **Training**

Employees shall receive training as job-site conditions warrant and periodically thereafter.

# Material Handling, Storage & Disposal

## Section 8.1

### Purpose

The purpose of this policy is to establish minimum safe work practices for personnel handling, storing, and disposing of materials and to meet applicable environmental obligations.

### References

OSHA 1926.250 & 1926.252, 1910.176

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employee*

Shall be aware of this policy and utilize safe work practices. Employees shall be accountable for the requirements of this section and their workplace actions.

### Material Handling

Lifting improperly is the largest single cause of back pain and injury. To reduce back injury incidence, the company has instituted these proper lifting techniques and other back safety measures.

The Company requires the procedures in this plan to be followed to provide a safe working environment. The Company has implemented these procedures on safe lifting practices to ensure that employees are trained to protect themselves from the hazards of improper lifting practices.

The following points outline good lifting practices and procedures, and safe lifting techniques to minimize the risk of back injury and pain.

1. Size up the load before you lift. Test by lifting one of the corners or pushing. If it's heavy or feels too clumsy, get a mechanical aid or help from another worker. When in doubt, don't lift alone!
2. Bend the knees. Note that this item is the single, most important aspect of lifting.
3. Place your feet close to the object and center yourself over the load.
4. Get a good firm hand-hold.
5. Lift straight up, smoothly and let your legs do the work, not your back!
6. Do not twist or turn your body once you have made the lift.
7. Make sure beforehand that you have a clear path to carry the load and a place to set it down.
8. Set the load down properly.
9. Always push a load on a cart or dolly, do not pull it.
10. Always solicit help if a load is too long, heavy, or requires awkward body mechanics.
11. Split the load into several smaller ones when you can.

### Material Storage

1. All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse.

# Material Handling, Storage & Disposal

## Section 8.1

2. Conspicuously post (in pounds per square foot) the maximum safe load limits of floors used as storage areas within buildings and structures, except for floor or slab on grade. Do not exceed maximum safe loads.
3. Keep aisles and passageways clear to provide for the free and safe movement of material handling equipment and employees. Make sure these areas are kept in good repair.
4. When a difference in road or working levels exist, use means such as ramps, blocking, or grading to ensure the safe movement of vehicles between the two levels.
5. When storing material inside buildings under construction, do not place the material within 6 feet of any hoistway or inside floor openings, or within 10 feet of an exterior wall that does not extend above the top of the material stored.
6. Equip each employee required to work on material stored in silos, hoppers, tanks, and similar storage areas with personal fall arrest equipment that meets the requirements of section 13.1 of this manual, entitled Fall Prevention and Protection.
7. Segregate non-compatible materials during storage.
8. Stack bagged materials by stepping back the layers and cross-keying the bags at least every 10 bags high.
9. Do not store materials on scaffolds or runways in excess of supplies needed for immediate operations or in excess of load capacities.
10. Do not stack brick more than seven feet in height. When a loose brick stack reaches a height of four feet, it shall be tapered back two inches in every foot of height above the four-foot level.
11. When stacking masonry blocks higher than six feet, taper the stack back one-half block per tier above the six-foot level.
12. Used lumber must have all nails withdrawn before stacking.
13. Stack lumber on level and solidly supported sills.
14. Stack lumber so that it is stable and self-supporting.
15. Do not allow lumber piles to exceed 20 feet in height and make sure that lumber that is to be handled manually is not be stacked more than 16 feet high.
16. Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, must be stacked and blocked so as to prevent spreading or tilting.

### Material Disposal

1. Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, an enclosed chute of wood, or equivalent material, shall be used. (An enclosed chute is a slide, closed in on all sides, through which material is moved between elevations.)
2. When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Post signs warning of the hazard of falling materials at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
3. Remove all scrap lumber, waste material, and rubbish from the immediate work area as the work progresses.
4. Comply with local fire regulations when disposing of waste material or debris by burning.

# Material Handling, Storage & Disposal

## Section 8.1

5. Keep all solvent waste, oily rags, and flammable liquids in fire resistant covered containers until removed from the worksite.
6. All disposed materials such as household garbage, construction debris, demolition, and other refuse shall be placed in appropriate containers in compliance with federal, state or local regulations.

### **Training**

Employees shall receive instruction on the provisions of this program upon date of hire as applicable and periodically thereafter.

# Rigging Equipment

## Section 8.2

### Purpose

The purpose of this policy is to establish safe work practices while rigging.

### Reference

OSHA 1926.251

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including: the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understood their responsibilities with respect to proper and safe use of all rigging equipment in the work environment.

### General Rigging

1. Inspect rigging equipment prior to use on each shift and as necessary during its use to ensure that it is safe.
2. Remove defective rigging equipment from service.
3. Remove rigging equipment, when not in use, from the immediate work area so it does not present a hazard to employees.
4. Do not load rigging equipment in excess of its recommended safe working load (see Tables RE-1 through RE-20 for the specific rigging equipment type, as shown in *Appendix A* of this section).

5. Mark the safe working load on any special custom grabs, hooks, clamps, or other lifting accessories (used for such units as modular panels, prefabricated structures, and similar materials). In addition, these custom pieces must be proof-tested prior to use to 125 percent of their rated load.

### Inspection

1. Before each shift, have a competent person inspect the sling and all fastenings and attachments for damage or defects.
2. Perform additional inspections as necessary during sling use (where service conditions warrant).
3. Remove any damaged or defective rigging equipment from service.

### Steel Alloy Chains

1. Welded alloy steel chain slings must have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer.
2. Hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, must have a rated capacity at least equal to that of the chain.
3. Do not use job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments.
4. Rated capacity (working load limit) for alloy steel chain slings shall conform to the values shown in Table RE-1.
5. Whenever wear at any point of any chain link exceeds that shown in Table RE-2, remove the assembly from service.

# Rigging Equipment

## Section 8.2

In addition to other inspections required, a thorough periodic inspection of alloy steel chain slings in use must be made on a regular basis, to be determined on the basis of (A) frequency of sling use; (B) severity of service conditions; (C) nature of lifts being made; and (D) experience gained on the service life of slings used in similar circumstances. These inspections are performed at least once every 12 months.

### Wire Rope

1. Use the Tables RE-3 through RE-14 to determine the safe working loads of various sizes and classifications of improved plow steel wire rope and wire rope slings with various types of terminals.
2. For sizes, classifications, and grades not included in these tables, the safe working load recommended by the manufacturer for specific, identifiable products shall be followed, provided that a safety factor of not less than 5 is maintained.
3. Cover or blunt protruding ends of strands in splices on slings and bridles.
4. Do not secure wire ropes by knots, except on haul back lines on scrapers.

Limitations for the use of wire rope:

1. An eye splice made in any wire rope must not have less than three full tucks. However, this requirement shall not operate to preclude the use of another form of splice or connection which can be shown to be as efficient and which is not otherwise prohibited.
2. Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in pulling loads, must consist of one continuous piece without knot or splice.
3. Eyes in wire rope bridles, slings, or bull wires must not be formed by wire rope clips or knots.

4. Wire rope must not be used if the rope shows signs of excessive wear, corrosion, or defect.

### U-Bolts

1. When U-bolt wire rope clips are used to form eyes, use Table RE-20 to determine the number and spacing of clips.
2. When used for eye splices, apply the U-bolt so that the "U" section is in contact with the dead end of the rope.

### Slings

1. Do not shorten slings with knots or bolts or other makeshift devices.
2. Prevent sling legs from getting kinked.
3. Slings used in a basket hitch must have the loads balanced to prevent slippage.
4. Slings must be padded or protected from the sharp edges of their loads.
5. Do not place hands or fingers between the sling and its load while the sling is being tightened around the load.
6. Shock loading is prohibited.
7. Do not pull a sling from under a load when the load is resting on the sling.

### Sling lengths, safe operating requirements, and sling end attachments

1. Braided slings must have a minimum clear length of wire rope 40 times the component rope diameter between the loops or end fittings.
2. Cable laid grommets, strand laid grommets, and endless slings must have a minimum circumferential length of 96 times their body diameter.
3. Fiber core wire rope slings of all grades must be permanently removed from service if they are exposed to temperatures in excess of 200°F (93.33°C).

# Rigging Equipment

## Section 8.2

4. When non-fiber core wire rope slings of any grade are used at temperatures above 400°F (204.44°C) or below minus 60°F (15.55°C), recommendations of the sling manufacturer regarding use at that temperature must be followed.
5. Welding of end attachments, except covers to thimbles, must be performed prior to the assembly of the sling.
6. All welded end attachments must not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. (The employer must retain a certificate of proof test, and make it available for examination.)
7. In applications where the projecting tails may be objectionable, the tails must be tapered and spliced into the body of the rope using at least two additional tucks (which will require a tail length of approximately six rope diameters beyond the last full tuck).
8. For all eye splices, the eye must be sufficiently large to provide an included angle of not greater than 60° at the splice when the eye is placed over the load or support.
9. Do not use knots in lieu of splices.
10. Natural and synthetic fiber rope slings, except for wet frozen slings, may be used in a temperature range from minus 20°F (-28.88°C) to plus 180°F (82.2°C) without decreasing the working load limit. For operations outside this temperature range and for wet frozen slings, the sling manufacturer's recommendations shall be followed.

### Natural or synthetic fiber rope slings

When using natural or synthetic fiber rope slings, Tables RE-15, 16, 17, and 18 apply.

1. If splicing rope slings, make all splices according to the fiber rope manufacturers' recommendations.
2. If splicing manila rope, eye splices must contain at least three full tucks, and short splices at least six full tucks (three on each side of the center line of the splice).
3. Inlayed synthetic fiber rope: eye splices must contain at least four full tucks, and short splices at least eight full tucks (four on each side of the center line of the splice).
4. Do not trim strand end tails short (flush with the surface of the rope) immediately adjacent to the full tucks. This precaution applies to both eye and short splices and all types of fiber rope.
5. For fiber ropes under 1-inch diameter, the tails must project at least six rope diameters beyond the last full tuck.
6. For fiber ropes 1-inch diameter and larger, the tails must project at least six inches beyond the last full tuck.

### Splicing natural or synthetic fiber rope slings

Do not use spliced fiber rope slings unless they have been spliced in accordance with the following minimum requirements and in accordance with any additional recommendations of the manufacturer:

1. In manila rope, eye splices shall consist of at least three full tucks, and short splices shall consist of at least six full tucks, three on each side of the splice center line.
2. In synthetic fiber rope, eye splices shall consist of at least four full tucks, and short splices shall consist of at least eight full tucks, four on each side of the center line.

# Rigging Equipment

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### Use of end units

1. Strand end tails shall not be trimmed flush with the surface of the rope immediately adjacent to the full tucks. This applies to all types of fiber rope and both eye and short splices. For fiber rope under 1 inch (2.54 cm) in diameter, the tail shall project at least six rope diameters beyond the last full tuck. For fiber rope 1 inch (2.54 cm) in diameter and larger, the tail shall project at least six inches (15.24 cm) beyond the last full tuck. Where a projecting tail interferes with the use of the sling, the tail shall be tapered and spliced into the body of the rope using at least two additional tucks (which will require a tail length of approximately six rope diameters beyond the last full tuck).
2. Fiber rope slings shall have a minimum clear length of rope between eye splices equal to 10 times the rope diameter.
3. Clamps not designed specifically for fiber ropes shall not be used for splicing.
4. Fiber rope slings must not be used if end attachments in contact with the rope have sharp edges or projections.

### Remove slings from service

Natural and synthetic fiber rope slings must be immediately removed from service if there are any of the following conditions present: abnormal wear, powdered fiber between strands, broken or cut fibers, variations in the size or roundness of strands, discoloration or rotting, or distortion of hardware in the sling.

### Synthetic Webbing

Mark or code each synthetic web sling to show:

1. Name or trademark of manufacturer.
2. Manufacturer's code or stock number.
3. Rated capacities for the type of hitch.
4. Type of material.

Do not exceed the rated capacity. Synthetic webbing must be of uniform thickness and width and selvage edges shall not be split from the webbing's width.

Fittings shall be:

1. Of a minimum breaking strength equal to that of the sling; and
2. Free of all sharp edges that could in any way damage the webbing.

Stitching must be the only method used to attach end fittings to webbing and to form eyes. The thread must be in an even pattern and contain a sufficient number of stitches to develop the full breaking strength of the sling.

When using synthetic web slings, take the following precautions:

1. Do not use nylon web slings where fumes, vapors, sprays, mists, or liquids of acids or phenolics are present.
2. Do not use polyester and polypropylene web slings where fumes, vapors, sprays, mists, or liquids of caustics are present.
3. Do not use web slings with aluminum fittings where fumes, vapors, sprays, mists, or liquids of caustics are present.
4. Do not use synthetic web slings made of polyester and nylon at temperatures in excess of 180°F (82.2°C).
5. Do not use polypropylene web slings at temperatures in excess of 200°F (93.33°C).
6. Remove synthetic web slings immediately from service if any of the following conditions are present: acid or caustic burns; melting or charring of any part of the sling surface; snags, punctures, tears or cuts; broken or worn stitches; or distortion of fittings.

# Rigging Equipment

## Section 8.2

### Custom Lifting Devices

Special custom design grabs, hooks, clamps, or other lifting accessories such as Spreader Beams shall have visible markings indicating rated capacity. In addition, custom-designed hooks, clamps, etc. shall be proof-tested prior to use to 125% of their rated load. This documentation shall be maintained at the project site or fixed facility in the appropriate file.

### Shackles and Hooks

Use table RE-19 to determine the safe working loads of various sizes of shackles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than five is maintained.

Follow the manufacturer's recommendations in determining the safe working loads of the various sizes and types of specific and identifiable hooks.

All hooks for which no applicable manufacturer's recommendations are available must be tested to twice the intended safe working load before they are initially put into use. Records of the dates and results of such tests shall be maintained

### Training

Employees shall receive training upon new hire and periodically there after.

### Appendices

Appendix A - Tables RE1-RE20

**Appendix A**  
**Rigging Material and Specifications**  
**Tables: RE-1 – RE-20**

**TABLE RE-1 – RATED CAPACITY (WORKING LOAD LIMIT), FOR ALLOY STEEL CHAIN SLINGS <sup>1</sup>**  
 Rated Capacity (Working Load Limit), Pounds  
 [Horizontal angles shown in parentheses] (2)

Chain size (inches)	Single branch sling – 90° loading	Double sling vertical angle (1)			Triple and quadruple sling vertical angle (1)		
		30° (60°)	45° (45°)	60° (30°)	30° (60°)	45° (45°)	60° (30°)
1/4	3,250	5,560	4,550	3,250	8,400	6,800	4,900
3/8	6,600	11,400	9,300	6,600	17,000	14,000	9,900
1/2	11,250	19,500	15,900	11,250	29,000	24,000	17,000
5/8	16,500	28,500	23,300	16,500	43,000	35,000	24,500
3/4	23,000	39,800	32,500	23,000	59,500	48,500	34,500
7/8	28,750	49,800	40,600	28,750	74,500	61,000	43,000
1	38,750	67,100	54,800	38,750	101,000	82,000	58,000
1-1/8	44,500	77,000	63,000	44,500	115,500	94,500	66,500
1-1/4	57,500	99,500	81,000	57,500	149,000	121,500	86,000
1-3/8	67,000	116,000	94,000	67,000	174,000	141,000	100,500
1-1/2	80,000	138,000	112,500	80,000	207,000	169,000	119,500
1-3/4	100,000	172,000	140,000	100,000	258,000	210,000	150,000

<sup>1</sup> Other grades of proof tested steel chain include Proof Coil, BBB Coil and Hi-Test Chain. These grades are not recommended for overhead lifting and therefore are not covered by this code.

(1) Rating of multileg slings adjusted for angle of loading measured as the included angle between the inclined leg and the vertical.

(2) Rating of multileg slings adjusted for angle of loading between the inclined leg and the horizontal plane of the load.

**TABLE RE-2 – MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK**

Chain size (inches)	Maximum allowable wear (inch)
1/4	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	11/64
1	3/16
1 1/8	7/32
1 1/4	1/4
1 3/8	9/32
1 1/2	5/16
1 3/4	11/32

**Appendix A**  
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**TABLE RE-3 – RATED CAPACITIES FOR SINGLE LEG SLINGS**  
6x19 and 6x37 Classification Improved Plow Steel Grade Rope with Fiber Core (FC)

Rope		Rated capacities, tons (2,000 lb.)								
Dia. (inches)	Constr.	Vertical			Choker			Vertical basket <sup>1</sup>		
		HT	MS	S	HT	MS	S	HT	MS	S
1/4	6x19	0.49	0.51	0.55	0.37	0.38	0.41	0.99	1.0	1.1
5/16	6x19	0.76	0.79	0.85	0.57	0.59	0.64	1.5	1.6	1.7
3/8	6x19	1.1	1.1	1.2	0.80	0.85	0.91	2.1	2.2	2.4
7/16	6x19	1.4	1.5	1.6	1.1	1.1	1.2	2.9	3.0	3.3
1/2	6x19	1.8	2.0	2.1	1.4	1.5	1.6	3.7	3.9	4.3
9/16	6x19	2.3	2.5	2.7	1.7	1.9	2.0	4.6	5.0	5.4
5/8	6x19	2.8	3.1	3.3	2.1	2.3	2.5	5.6	6.2	6.7
3/4	6x19	3.9	4.4	4.8	2.9	3.3	3.6	7.8	8.8	9.5
7/8	6x19	5.1	5.9	6.4	3.9	4.5	4.8	10.0	12.0	13.0
1	6x19	6.7	7.7	8.4	5.0	5.8	6.3	13.0	15.0	17.0
1 1/8	6x19	8.4	9.5	10.0	6.3	7.1	7.9	17.0	19.0	21.0
1 1/4	6x37	9.8	11.0	12.0	7.4	8.3	9.2	20.0	22.0	25.0
1 3/8	6x37	12.0	13.0	15.0	8.9	10.0	11.0	24.0	27.0	30.0
1 1/2	6x37	14.0	16.0	17.0	10.0	12.0	13.0	28.0	32.0	35.0
1 5/8	6x37	16.0	18.0	21.0	12.0	14.0	15.0	33.0	37.0	41.0
1 3/4	6x37	19.0	21.0	24.0	14.0	16.0	18.0	38.0	43.0	48.0
2	6x37	25.0	28.0	31.0	18.0	21.0	23.0	49.0	55.0	62.0

<sup>1</sup> These values only apply when the D/d ratio for HT slings is 10 or greater, and for MS and S Slings is 20 or greater where:  
D = Diameter of curvature around which the body of the sling is bent. d = Diameter of rope.  
HT = Hand Tucked Splice and Hidden Tuck Splice. For hidden tuck splice (IWRC) use values in HT columns.  
MS = Mechanical Splice.  
S = Swaged or Zinc Poured Socket.

**TABLE RE-4 – RATED CAPACITIES FOR SINGLE LEG SLINGS**  
6x19 and 6x37 Classification Improved Plow Steel Grade Rope with Independent Wire Rope Core (IWRC)

Rope		Rated capacities, tons (2,000 lb.)								
Dia. (inches)	Constr.	Vertical			Choker			Vertical basket <sup>1</sup>		
		HT	MS	S	HT	MS	S	HT	MS	S
1/4	6x19	0.53	0.56	0.59	0.40	0.42	0.44	1.0	1.1	1.2
5/16	6x19	0.81	0.87	0.92	0.61	0.65	0.69	1.6	1.7	1.8
3/8	6x19	1.1	1.2	1.3	0.86	0.93	0.98	2.3	2.5	2.6
7/16	6x19	1.5	1.7	1.8	1.2	1.3	1.3	3.1	3.4	3.5
1/2	6x19	2.0	2.2	2.3	1.5	1.6	1.7	3.9	4.4	4.6
9/16	6x19	2.5	2.7	2.9	1.8	2.1	2.2	4.9	5.5	5.8
5/8	6x19	3.0	3.4	3.6	2.2	2.5	2.7	6.0	6.8	7.2
3/4	6x19	4.2	4.9	5.1	3.1	3.6	3.8	8.4	9.7	10.0
7/8	6x19	5.5	6.6	6.9	4.1	4.9	5.2	11.0	13.0	14.0
1	6x19	7.2	8.5	9.0	5.4	6.4	6.7	14.0	17.0	18.0
1 1/8	6x19	9.0	10.0	11.0	6.8	7.8	8.5	18.0	21.0	23.0
1 1/4	6x37	10.0	12.0	13.0	7.9	9.2	9.9	21.0	24.0	26.0
1 3/8	6x37	13.0	15.0	16.0	9.6	11.0	12.0	25.0	29.0	32.0
1 1/2	6x37	15.0	17.0	19.0	11.0	13.0	14.0	30.0	35.0	38.0
1 5/8	6x37	18.0	20.0	22.0	13.0	15.0	17.0	35.0	41.0	44.0
1 3/4	6x37	20.0	24.0	26.0	15.0	18.0	19.0	41.0	47.0	51.0
2	6x37	26.0	30.0	33.0	20.0	23.0	25.0	53.0	61.0	66.0

<sup>1</sup> These values only apply when the D/d ratio for HT slings is 10 or greater, and for MS and S Slings is 20 or greater where:  
D = Diameter of curvature around which the body of the sling is bent. d = Diameter of rope.  
HT = Hand Tucked Splice. For hidden tuck splice (IWRC) use Table H-3 values in HT column.  
MS = Mechanical Splice.  
S = Swaged or Zinc Poured Socket.

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**TABLE RE-5 – RATED CAPACITIES FOR SINGLE LEG SLINGS**  
Cable Laid Rope – Mechanical Splice Only  
7x7x7 and 7x7x19 Construction Galvanized Aircraft Grade Rope  
7x6x19 IWRC Construction Improved Plow Steel Grade Rope

Rope		Rated capacities, tons (2,000 lb.)		
Dia. (inches)	Constr.	Vertical	Choker	Vertical basket <sup>1</sup>
1/4	7x7x7	0.50	0.38	1.0
3/8	7x7x7	1.1	0.81	2.2
1/2	7x7x7	1.8	1.4	3.7
5/8	7x7x7	2.8	2.1	5.5
3/4	7x7x7	3.8	2.9	7.6
5/8	7x7x19	2.9	2.2	5.8
3/4	7x7x19	4.1	3.0	8.1
7/8	7x7x19	5.4	4.0	11.0
1	7x7x19	6.9	5.1	14.0
1 1/8	7x7x19	8.2	6.2	16.0
1 1/4	7x7x19	9.9	7.4	20.0
3/4	<sup>2</sup> 7x6x19	3.8	2.8	7.6
7/8	<sup>2</sup> 7x6x19	5.0	3.8	10.0
1	<sup>2</sup> 7x6x19	6.4	4.8	13.0
1 1/8	<sup>2</sup> 7x6x19	7.7	5.8	15.0
1 1/4	<sup>2</sup> 7x6x19	9.2	6.9	18.0
1 5/16	<sup>2</sup> 7x6x19	10.0	7.5	20.0
1 3/8	<sup>2</sup> 7x6x19	11.0	8.2	22.0
1 1/2	<sup>2</sup> 7x6x19	13.0	9.6	26.0

<sup>1</sup> These values only apply when the D/d ratio is 10 or greater where: D = Diameter of curvature around which the body of the sling is bent.  
d = Diameter of rope.  
<sup>2</sup> IWRC.

**TABLE RE-6 – RATED CAPACITIES FOR SINGLE LEG SLINGS**  
8-Part and 6-Part Braided Rope  
6x7 and 6x19 Construction Improved Plow Steel Grade Rope  
7x7 Construction Galvanized Aircraft Grade Rope

Component ropes		Rated capacities, tons (2,000 lb.)					
Diameter (inches)	Constr.	Vertical		Choker		Basket vertical to 30° <sup>1</sup>	
		8-Part	6-Part	8-Part	6-Part	8-Part	6-Part
3/32	6x7	0.42	0.32	0.32	0.24	0.74	0.55
1/8	6x7	0.76	0.57	0.57	0.42	1.3	0.98
3/16	6x7	1.7	1.3	1.3	0.94	2.9	2.2
3/32	7x7	0.51	0.39	0.38	0.29	0.89	0.67
1/8	7x7	0.95	0.71	0.71	0.53	1.6	1.2
3/16	7x7	2.1	1.5	1.5	1.2	3.6	2.7
3/16	6x19	1.7	1.3	1.3	0.98	3.0	2.2
1/4	6x19	3.1	2.3	2.3	1.7	5.3	4.0
5/16	6x19	4.8	3.6	3.6	2.7	8.3	6.2
3/8	6x19	6.8	5.1	5.1	3.8	12.0	8.9
7/16	6x19	9.3	6.9	6.9	5.2	16.0	12.0
1/2	6x19	12.0	9.0	9.0	6.7	21.0	15.0
9/16	6x19	15.0	11.0	11.0	8.5	26.0	20.0
5/8	6x19	19.0	14.0	14.0	10.0	32.0	24.0
3/4	6x19	27.0	20.0	20.0	15.0	46.0	35.0
7/8	6x19	36.0	27.0	27.0	20.0	62.0	47.0
1	6x19	47.0	35.0	35.0	26.0	81.0	61.0

<sup>1</sup> These values only apply when the D/d ratio is 20 or greater where: D = Diameter of curvature around which the body of the sling is bent.  
d = Diameter of component rope.

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**TABLE RE-7 – RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS**  
6x19 and 6x37 Classification Improved Plow Steel Grade Rope With Fiber Core (FC)

Rope		Rated capacities, tons (2,000 lb.)											
Dia. (inches)	Constr.	2-leg bridle slings						3-leg bridle slings					
		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>	
		HT	MS	HT	MS	HT	MS	HT	MS	HT	MS	HT	MS
1/4	6x19	0.85	0.88	0.70	0.72	0.49	0.51	1.3	1.3	1.0	1.1	0.74	0.7
5/16	6x19	1.3	1.4	1.1	1.1	0.76	0.79	2.0	2.0	1.6	1.7	1.1	1.2
3/8	6x19	1.8	1.9	1.5	1.6	1.1	1.1	2.8	2.9	2.3	2.4	1.6	1.7
7/16	6x19	2.5	2.6	2.0	2.2	1.4	1.5	3.7	4.0	3.0	3.2	2.1	2.3
1/2	6x19	3.2	3.4	2.6	2.8	1.8	2.0	4.8	5.1	3.9	4.2	2.8	3.0
9/16	6x19	4.0	4.3	3.2	3.5	2.3	2.5	6.0	6.5	4.9	5.3	3.4	3.7
5/8	6x19	4.8	5.3	4.0	4.4	2.8	3.1	7.3	8.0	5.9	6.5	4.2	4.6
3/4	6x19	6.8	7.6	5.5	6.2	3.9	4.4	10.0	11.0	8.3	9.3	5.8	6.6
7/8	6x19	8.9	10.0	7.3	8.4	5.1	5.9	13.0	15.0	11.0	13.0	7.7	8.9
1	6x19	11.0	13.0	9.4	11.0	6.7	7.7	17.0	20.0	14.0	16.0	10.0	11.0
1 1/8	6x19	14.0	16.0	12.0	13.0	8.4	9.5	22.0	24.0	18.0	20.0	13.0	14.0
1 1/4	6x37	17.0	19.0	14.0	16.0	9.8	11.0	25.0	29.0	21.0	23.0	15.0	17.0
1 3/8	6x37	20.0	23.0	17.0	19.0	12.0	13.0	31.0	35.0	25.0	28.0	18.0	20.0
1 1/2	6x37	24.0	27.0	20.0	22.0	14.0	16.0	36.0	41.0	30.0	33.0	21.0	24.0
1 5/8	6x37	28.0	32.0	23.0	26.0	16.0	18.0	43.0	48.0	35.0	39.0	25.0	28.0
1 3/4	6x37	33.0	37.0	27.0	30.0	19.0	21.0	49.0	56.0	40.0	45.0	28.0	32.0
2	6x37	43.0	48.0	35.0	39.0	25.0	28.0	64.0	72.0	52.0	59.0	37.0	41.0

HT = Hand Tucked Splice.  
MS = Mechanical Splice.

<sup>1</sup> Vertical angles.  
<sup>2</sup> Horizontal angles.

**TABLE RE-8 – RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS**  
6x19 and 6x37 Classification Improved Plow Steel Grade Rope With Independent Wire Rope Core (IWRC)

Rope		Rated capacities, tons (2,000 lb.)											
Dia. (inches)	Constr.	2-leg bridle slings						3-leg bridle slings					
		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>	
		HT	MS	HT	MS	HT	MS	HT	MS	HT	MS	HT	MS
1/4	6x19	0.92	0.97	0.75	0.79	0.53	0.56	1.4	1.4	1.1	1.2	0.79	0.84
5/16	6x19	1.4	1.5	1.1	1.2	1.81	0.87	2.1	2.3	1.7	1.8	1.2	1.3
3/8	6x19	2.0	2.1	1.6	1.8	1.1	1.2	3.0	3.2	2.4	2.6	1.7	1.9
7/16	6x19	2.7	2.9	2.2	2.4	1.5	1.7	4.0	4.4	3.3	3.6	2.3	2.5
1/2	6x19	3.4	3.8	2.8	3.1	2.0	2.2	5.1	5.7	4.2	4.6	3.0	3.3
9/16	6x19	4.3	4.8	3.5	3.9	2.5	2.7	6.4	7.1	5.2	5.8	3.7	4.1
5/8	6x19	5.2	5.9	4.2	4.8	3.0	3.4	7.8	8.8	6.4	7.2	4.5	5.1
3/4	6x19	7.3	8.4	5.9	6.9	4.2	4.9	11.0	13.0	8.9	10.0	6.3	7.3
7/8	6x19	9.6	11.0	7.8	9.3	5.5	6.6	14.0	17.0	12.0	14.0	8.3	9.9
1	6x19	12.0	15.0	10.0	12.0	7.2	8.5	19.0	22.0	15.0	18.0	11.0	13.0
1 1/8	6x19	16.0	18.0	13.0	15.0	9.0	10.0	23.0	27.0	19.0	22.0	13.0	16.0
1 1/4	6x37	18.0	21.0	15.0	17.0	10.0	12.0	27.0	32.0	22.0	26.0	16.0	18.0
1 3/8	6x37	22.0	25.0	18.0	21.0	13.0	15.0	33.0	38.0	27.0	31.0	19.0	22.0
1 1/2	6x37	26.0	30.0	21.0	25.0	15.0	17.0	39.0	45.0	32.0	37.0	23.0	26.0
1 5/8	6x37	31.0	35.0	25.0	29.0	18.0	20.0	46.0	53.0	38.0	43.0	27.0	31.0
1 3/4	6x37	35.0	41.0	29.0	33.0	20.0	24.0	53.0	61.0	43.0	50.0	31.0	35.0
2	6x37	46.0	53.0	37.0	43.0	26.0	30.0	68.0	79.0	56.0	65.0	40.0	46.0

HT = Hand Tucked Splice.  
MS = Mechanical Splice.

<sup>1</sup> Vertical angles.  
<sup>2</sup> Horizontal angles.

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**TABLE RE-9 – RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS**  
Cable Laid Rope – Mechanical Splice Only  
7x7x7 and 7x7x19 Construction Galvanized Aircraft Grade Rope  
7x6x19 IWRC Construction Improved Plow Steel Grade Rope

Rope		Rated capacities, tons (2,000 lb.)					
Dia. (inches)	Constr.	2-leg bridle sling			3-leg bridle sling		
		30° <sup>1</sup> (60°) <sup>2</sup>	45° angle	60° <sup>1</sup> (30°) <sup>2</sup>	30° <sup>1</sup> (60°) <sup>2</sup>	45° angle	60° <sup>1</sup> (30°) <sup>2</sup>
1/4	7x7x7	0.87	0.71	0.50	1.3	1.1	0.75
3/8	7x7x7	1.9	1.5	1.1	2.8	2.3	1.6
1/2	7x7x7	3.2	2.6	1.8	4.8	3.9	2.8
5/8	7x7x7	4.8	3.9	2.8	7.2	5.9	4.2
3/4	7x7x7	6.6	5.4	3.8	9.9	8.1	5.7
5/8	7x6x19	5.0	4.1	2.9	7.5	6.1	4.3
3/4	7x6x19	7.0	5.7	4.1	10.0	8.6	6.1
7/8	7x6x19	9.3	7.6	5.4	14.0	11.0	8.1
1	7x6x19	12.0	9.7	6.9	18.0	14.0	10.0
1 1/8	7x6x19	14.0	12.0	8.2	21.0	17.0	12.0
1 1/4	7x6x19	17.0	14.0	9.9	26.0	21.0	15.0
3/4	7x6x19 IWRC	6.6	5.4	3.8	9.9	8.0	5.7
7/8	7x6x19 IWRC	8.7	7.1	5.0	13.0	11.0	7.5
1	7x6x19 IWRC	11.0	9.0	6.4	17.0	13.0	9.6
1 1/8	7x6x19 IWRC	13.0	11.0	7.7	20.0	16.0	11.0
1 1/4	7x6x19 IWRC	16.0	13.0	9.2	24.0	20.0	14.0
1 5/16	7x6x19 IWRC	17.0	14.0	10.0	26.0	21.0	15.0
1 3/8	7x6x19 IWRC	19.0	15.0	11.0	28.0	23.0	16.0
1 1/2	7x6x19 IWRC	22.0	18.0	13.0	33.0	27.0	19.0

<sup>1</sup> Vertical angles.  
<sup>2</sup> Horizontal angles.

**TABLE RE-10 – RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS**  
8-Part and 6-Part Braided Rope  
6x7 and 6x19 Construction Improved Plow Steel Grade Rope  
7x7 Construction Galvanized Aircraft Grade Rope

Rope		Rated capacities, tons (2,000 lb.)											
Dia. (inches)	Constr.	2-leg bridle slings						3-leg bridle slings					
		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>		30° <sup>1</sup> (60°) <sup>2</sup>		45° angle		60° <sup>1</sup> (30°) <sup>2</sup>	
		8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part
3/32	6x7	0.74	0.55	0.60	0.45	0.42	0.32	1.1	0.83	0.90	0.68	0.64	0.48
1/8	6x7	1.3	0.98	1.1	0.80	0.76	0.57	2.0	1.5	1.6	1.2	1.1	0.85
3/16	6x7	2.9	2.2	2.4	1.8	1.7	1.3	4.4	3.3	3.6	2.7	2.5	1.9
3/32	7x7	0.89	0.67	0.72	0.55	0.51	0.39	1.3	1.0	1.1	0.82	0.77	0.58
1/8	7x7	1.6	1.2	1.3	1.0	0.95	0.71	2.5	1.8	2.0	1.5	1.4	1.1
3/16	7x7	3.6	2.7	2.9	2.2	2.1	1.5	5.4	4.0	4.4	3.3	3.1	2.3
3/16	6x19	3.0	2.2	2.4	1.8	1.7	1.3	4.5	3.4	3.7	2.8	2.6	1.9
1/4	6x19	5.3	4.0	4.3	3.2	3.1	2.3	8.0	6.0	6.5	4.9	4.6	3.4
5/16	6x19	8.3	6.2	6.7	5.0	4.8	3.6	12.0	9.3	10.0	7.6	7.1	5.4
3/8	6x19	12.0	8.9	9.7	7.2	6.8	5.1	18.0	13.0	14.0	11.0	10.0	7.7
7/16	6x19	16.0	12.0	13.0	9.8	9.3	6.9	24.0	18.0	20.0	15.0	14.0	10.0
1/2	6x19	21.0	15.0	17.0	13.0	12.0	9.0	31.0	23.0	25.0	19.0	18.0	13.0
9/16	6x19	26.0	20.0	21.0	16.0	15.0	11.0	39.0	29.0	32.0	24.0	23.0	17.0
5/8	6x19	32.0	24.0	26.0	20.0	19.0	14.0	48.0	36.0	40.0	30.0	28.0	21.0
3/4	6x19	46.0	35.0	38.0	28.0	27.0	20.0	69.0	52.0	56.0	42.0	40.0	30.0
7/8	6x19	62.0	47.0	51.0	38.0	36.0	27.0	94.0	70.0	76.0	57.0	54.0	40.0
1	6x19	81.0	61.0	66.0	50.0	47.0	35.0	122.0	91.0	99.0	74.0	70.0	53.0

<sup>1</sup> Vertical angles.  
<sup>2</sup> Horizontal angles.

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**TABLE RE-11 – RATED CAPACITIES FOR STRAND LAID GROMMET – HAND TUCKED**  
Improved Plow Steel Grade Rope

Rope body		Rated capacities, tons (2,000 lb.)		
Dia. (inches)	Constr.	Vertical	Choker	Vertical basket <sup>1</sup>
1/4	7x19	0.85	0.64	1.7
5/16	7x19	1.3	1.0	2.6
3/8	7x19	1.9	1.4	3.8
7/16	7x19	2.6	1.9	5.2
1/2	7x19	3.3	2.5	6.7
9/16	7x19	4.2	3.1	8.4
5/8	7x19	5.2	3.9	10.00
3/4	7x19	7.4	5.6	15.0
7/8	7x19	10.0	7.5	20.0
1	7x19	13.0	9.7	26.0
1 1/8	7x19	16.0	12.0	32.0
1 1/4	7x37	18.0	14.0	37.0
1 3/8	7x37	22.0	16.0	44.0
1 1/2	7x37	26.0	19.0	52.0

<sup>1</sup> These values only apply when the D/d ratio is 5 or greater where: D = Diameter of curvature around which rope is bent.  
d = Diameter of rope body.

**TABLE RE-12 – RATED CAPACITIES FOR CABLE LAID GROMMET – HAND TUCKED**  
7x6x7 and 7x6x19 Construction Improved Plow Steel Grade Rope  
7x7x7 Construction Galvanized Aircraft Grade Rope

Cable body		Rated capacities, tons (2,000 lb.)		
Dia. (inches)	Constr.	Vertical	Choker	Vertical basket <sup>1</sup>
3/8	7x6x7	1.3	0.95	2.5
9/16	7x6x7	2.8	2.1	5.6
5/8	7x6x7	3.8	2.8	7.6
3/8	7x7x7	1.6	1.2	3.2
9/16	7x7x7	3.5	2.6	6.9
5/8	7x7x7	4.5	3.4	9.0
5/8	7x6x19	3.9	3.0	7.9
3/4	7x6x19	5.1	3.8	10.0
15/16	7x6x19	7.9	5.9	16.0
1 1/8	7x6x19	11.0	8.4	22.0
1 5/16	7x6x19	15.0	11.0	30.0
1 1/2	7x6x19	19.0	14.0	39.0
1 11/16	7x6x19	24.0	18.0	49.0
1 7/8	7x6x19	30.0	22.0	60.0
2 1/4	7x6x19	42.0	31.0	84.0
2 5/8	7x6x19	56.0	42.0	112.0

<sup>1</sup> These values only apply when the D/d ratio is 5 or greater where: D = Diameter of curvature around which cable body is bent. d = Diameter of cable body.

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**TABLE RE-13 – RATED CAPACITIES FOR STRAND LAID ENDLESS SLINGS – MECHANICAL JOINT**  
Improved Plow Steel Grade Rope

Rope body		Rated capacities, tons (2,000 lb.)		
Dia. (inches)	Constr.	Vertical	Choker	Vertical basket <sup>1</sup>
1/4	<sup>2</sup> 6x19	0.92	0.69	1.8
3/8	<sup>2</sup> 6x19	2.0	1.5	4.1
1/2	<sup>2</sup> 6x19	3.6	2.7	7.2
5/8	<sup>2</sup> 6x19	5.6	4.2	11.0
3/4	<sup>2</sup> 6x19	8.0	6.0	16.0
7/8	<sup>2</sup> 6x19	11.0	8.1	21.0
1	<sup>2</sup> 6x19	14.0	10.0	28.0
1 1/8	<sup>2</sup> 6x19	18.0	13.0	35.0
1 1/4	<sup>2</sup> 6x37	21.0	15.0	41.0
1 3/8	<sup>2</sup> 6x37	25.0	19.0	50.0
1 1/2	<sup>2</sup> 6x37	29.0	22.0	59.0

<sup>1</sup> These values only apply when the D/d ratio is 5 or greater where: D = Diameter of curvature around which rope is bent. d = Diameter of rope body.

<sup>2</sup> IWRC.

**TABLE RE-14 – RATED CAPACITIES FOR CABLE LAID ENDLESS SLINGS – MECHANICAL JOINT**  
7x7x7 and 7x7x19 Construction Galvanized Aircraft Grade Rope  
7x6x19 IWRC Construction Improved Plow Steel Grade Rope

Cable body		Rated capacities, tons (2,000 lb.)		
Dia. (inches)	Constr.	Vertical	Choker	Vertical basket <sup>1</sup>
1/4	7x7x7	0.83	0.62	1.6
3/8	7x7x7	1.8	1.3	3.5
1/2	7x7x7	3.0	2.3	6.1
5/8	7x7x7	4.5	3.4	9.1
3/4	7x7x7	6.3	4.7	12.0
5/8	7x7x19	4.7	3.5	9.5
3/4	7x7x19	6.7	5.0	13.0
7/8	7x7x19	8.9	6.6	18.0
1	7x7x19	11.0	8.5	22.0
1 1/8	7x7x19	14.0	10.0	28.0
1 1/4	7x7x19	17.0	12.0	33.0
3/4	<sup>2</sup> 7x6x19	6.2	4.7	12.0
7/8	<sup>2</sup> 7x6x19	8.3	6.2	16.0
1	<sup>2</sup> 7x6x19	10.0	7.9	21.0
1 1/8	<sup>2</sup> 7x6x19	13.0	9.7	26.0
1 1/4	<sup>2</sup> 7x6x19	16.0	12.0	31.0
1 3/8	<sup>2</sup> 7x6x19	18.0	14.0	37.0
1 1/2	<sup>2</sup> 7x6x19	22.0	16.0	43.0

<sup>1</sup> These values only apply when the D/d value is 5 or greater where: D = Diameter of curvature around which cable body is bent. d = Diameter of cable body.

<sup>2</sup> IWRC.

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**TABLE RE-15 – MANILA ROPE SLINGS**  
[Angle of rope to vertical shown in parentheses]

Rope diameter nominal in inches	Nominal weight per 100 ft. in pounds	Minimum breaking strength in pounds	Rated capacity in pounds (safety factor = 5)											
			Eye and eye sling						Endless sling					
			Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal				Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal			
					90° (0°)	60° (30°)	45° (45°)	30° (60°)			90° (0°)	60° (30°)	45° (45°)	30° (60°)
1/2	7.5	2,650	550	250	1,100	900	750	550	950	500	1,900	1,700	1,400	950
9/16	10.4	3,450	700	350	1,400	1,200	1,000	700	1,200	600	2,500	2,200	1,800	1,200
5/8	13.3	4,400	900	450	1,800	1,500	1,200	900	1,600	800	3,200	2,700	2,200	1,600
3/4	16.7	5,400	1,100	550	2,200	1,900	1,500	1,100	2,000	950	3,900	3,400	2,800	2,000
13/16	19.5	6,500	1,300	650	2,600	2,300	1,800	1,300	2,300	1,200	4,700	4,100	3,300	2,300
7/8	22.5	7,700	1,500	750	3,100	2,700	2,200	1,500	2,800	1,400	5,600	4,800	3,900	2,800
1	27.0	9,000	1,800	900	3,600	3,100	2,600	1,800	3,200	1,600	6,500	5,600	4,600	3,200
1 1/16	31.3	10,500	2,100	1,100	4,200	3,600	3,000	2,100	3,800	1,900	7,600	6,600	5,400	3,800
1 1/8	36.0	12,000	2,400	1,200	4,800	4,200	3,400	2,400	4,300	2,200	8,600	7,500	6,100	4,300
1 1/4	41.7	13,500	2,700	1,400	5,400	4,700	3,800	2,700	4,900	2,400	9,700	8,400	6,900	4,900
1 5/16	47.9	15,000	3,000	1,500	6,000	5,200	4,300	3,000	5,400	2,700	11,000	9,400	7,700	5,400
1 1/2	59.9	18,500	3,700	1,850	7,400	6,400	5,200	3,700	6,700	3,300	13,500	11,500	9,400	6,700
1 5/8	74.6	22,500	4,500	2,300	9,000	7,800	6,400	4,500	8,100	4,100	16,000	14,000	11,500	8,000
1 3/4	89.3	26,500	5,300	2,700	10,500	9,200	7,500	5,300	9,500	4,800	19,000	16,500	13,500	9,500
2	107.5	31,000	6,200	3,100	12,500	10,500	8,800	6,200	11,000	5,600	22,500	19,500	16,000	11,000
2 1/8	125.0	36,000	7,200	3,600	14,500	12,500	10,000	7,200	13,000	6,500	26,000	22,500	18,500	13,000
2 1/4	146.0	41,000	8,200	4,100	16,500	14,000	11,500	8,200	15,000	7,400	29,500	25,500	21,000	15,000
2 1/2	166.7	46,500	9,300	4,700	18,500	16,000	13,000	9,300	16,500	8,400	33,500	29,000	23,500	16,500
2 5/8	190.8	52,000	10,500	5,200	21,000	18,000	14,500	10,500	18,500	9,500	37,500	32,500	26,500	18,500

**TABLE RE-16 – NYLON ROPE SLINGS**  
[Angle of rope to vertical shown in parentheses]

Rope diameter nominal in inches	Nominal weight per 100 ft. in pounds	Minimum breaking strength in pounds	Rated capacity in pounds (safety factor = 9)											
			Eye and eye sling						Endless sling					
			Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal				Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal			
					90° (0°)	60° (30°)	45° (45°)	30° (60°)			90° (0°)	60° (30°)	45° (45°)	30° (60°)
1/2	6.5	6,080	700	350	1,400	1,200	950	700	1,200	600	2,400	2,100	1,700	1,200
9/16	8.3	7,600	850	400	1,700	1,500	1,200	850	1,500	750	3,000	2,600	2,200	1,500
5/8	10.5	9,880	1,100	550	2,200	1,900	1,600	1,100	2,000	1,000	4,000	3,400	2,800	2,000
3/4	14.5	13,490	1,500	750	3,000	2,600	2,100	1,500	2,700	1,400	5,400	4,700	3,800	2,700
13/16	17.0	16,150	1,800	900	3,600	3,100	2,600	1,800	3,200	1,600	6,400	5,600	4,600	3,200
7/8	20.0	19,000	2,100	1,100	4,200	3,700	3,000	2,100	3,800	1,900	7,600	6,600	5,400	3,800
1	26.0	23,750	2,600	1,300	5,300	4,600	3,700	2,600	4,800	2,400	9,500	8,200	6,700	4,800
1 1/16	29.0	27,360	3,000	1,500	6,100	5,300	4,300	3,000	5,500	2,700	11,000	9,500	7,700	5,500
1 1/8	34.0	31,350	3,500	1,700	7,000	6,000	5,000	3,500	6,300	3,100	12,500	11,000	8,900	6,300
1 1/4	40.0	35,625	4,000	2,000	7,900	6,900	5,600	4,000	7,100	3,600	14,500	12,500	10,000	7,100
1 5/16	45.0	40,850	4,500	2,300	9,100	7,900	6,400	4,500	8,200	4,100	16,500	14,000	12,000	8,200
1 1/2	55.0	50,350	5,600	2,800	11,000	9,700	7,900	5,600	10,000	5,000	20,000	17,500	14,000	10,000
1 5/8	68.0	61,750	6,900	3,400	13,500	12,000	9,700	6,900	12,500	6,200	24,500	21,500	17,500	12,500
1 3/4	83.0	74,100	8,200	4,100	16,500	14,500	11,500	8,200	15,000	7,400	29,500	27,500	21,000	15,000
2	95.0	87,400	9,700	4,900	19,500	17,000	13,500	9,700	17,500	8,700	35,000	30,500	24,500	17,500
2 1/8	109.0	100,700	11,000	5,600	22,500	19,500	16,000	11,000	20,000	10,000	40,500	35,000	28,500	20,000
2 1/4	129.0	118,750	13,000	6,600	26,500	23,000	18,500	13,000	24,000	12,000	47,500	41,000	33,500	24,000
2 1/2	149.0	133,000	15,000	7,400	29,500	25,500	21,000	15,000	26,500	13,500	53,000	46,000	37,500	26,500
2 5/8	168.0	153,900	17,100	8,600	34,000	29,500	24,000	17,000	31,000	15,500	61,500	53,500	43,500	31,000

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**TABLE RE-17 – POLYESTER ROPE SLINGS**  
[Angle of rope to vertical shown in parentheses]

Rope diameter nominal in inches	Nominal weight per 100 ft. in pounds	Minimum breaking strength in pounds	Rated capacity in pounds (safety factor = 9)											
			Eye and eye sling						Endless sling					
			Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal				Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal			
					90° (0°)	60° (30°)	45° (45°)	30° (60°)			90° (0°)	60° (30°)	45° (45°)	30° (60°)
1/2	8.0	6,080	700	350	1,400	1,200	950	700	1,200	600	2,400	2,100	1,700	1,200
9/16	10.2	7,600	850	400	1,700	1,500	1,200	850	1,500	750	3,000	2,600	2,200	1,500
5/8	13.0	9,500	1,100	550	2,100	1,800	1,500	1,100	1,900	950	3,800	3,300	2,700	1,900
3/4	17.5	11,875	1,300	650	2,600	2,300	1,900	1,300	2,400	1,200	4,800	4,100	3,400	2,400
13/16	21.0	14,725	1,600	800	3,300	2,800	2,300	1,600	2,900	1,500	5,900	5,100	4,200	2,900
7/8	25.0	17,100	1,900	950	3,800	3,300	2,700	1,900	3,400	1,700	6,800	5,900	4,800	3,400
1	30.5	20,900	2,300	1,200	4,600	4,000	3,300	2,300	4,200	2,100	8,400	7,200	5,900	4,200
1 1/16	34.5	24,225	2,700	1,300	5,400	4,700	3,800	2,700	4,800	2,400	9,700	8,400	6,900	4,800
1 1/8	40.0	28,025	3,100	1,600	6,200	5,400	4,400	3,100	5,600	2,800	11,000	9,700	7,900	5,600
1 1/4	46.3	31,540	3,500	1,800	7,000	6,100	5,000	3,500	6,300	3,200	12,500	11,000	8,900	6,300
1 5/16	52.5	35,625	4,000	2,000	7,900	6,900	5,600	4,000	7,100	3,600	14,500	12,500	10,000	7,100
1 1/2	66.8	44,460	4,900	2,500	9,900	8,800	7,000	4,900	8,900	4,400	18,000	15,500	12,500	8,900
1 5/8	82.0	54,150	6,000	3,000	12,000	10,400	8,500	6,000	11,000	5,400	21,500	19,000	15,500	11,000
1 3/4	98.0	64,410	7,200	3,600	14,500	12,500	10,000	7,200	13,000	6,400	26,000	22,500	18,000	13,000
2	118.0	78,000	8,400	4,200	17,000	14,500	12,000	8,400	15,000	7,600	30,500	26,500	21,500	15,000
2 1/8	135.0	87,400	9,700	4,900	19,500	17,000	13,500	9,700	17,500	8,700	35,000	30,500	24,500	17,500
2 1/4	157.0	101,650	11,500	5,700	22,500	19,500	16,000	11,500	20,500	10,000	40,500	35,000	29,000	20,500
2 1/2	181.0	115,900	13,000	6,400	26,000	22,500	18,000	13,000	23,000	11,500	46,500	40,000	33,000	23,000
2 5/8	205.0	130,150	14,500	7,200	29,000	25,000	20,500	14,500	26,000	13,000	52,000	45,000	37,000	26,000

**TABLE RE-18 – POLYPROPYLENE ROPE SLINGS**  
[Angle of rope to vertical shown in parentheses]

Rope diameter nominal in inches	Nominal weight per 100 ft. in pounds	Minimum breaking strength in pounds	Rated capacity in pounds (safety factor =6)											
			Eye and eye sling						Endless sling					
			Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal				Vertical hitch	Choker hitch	Basket hitch; angle of rope to horizontal			
					90° (0°)	60° (30°)	45° (45°)	30° (60°)			90° (0°)	60° (30°)	45° (45°)	30° (60°)
1/2	4.7	3,990	650	350	1,300	1,200	950	650	1,200	600	2,400	2,100	1,700	1,200
9/16	6.1	4,845	800	400	1,600	1,400	1,100	800	1,500	750	2,900	2,500	2,100	1,500
5/8	7.5	5,890	1,000	500	2,000	1,700	1,400	1,000	1,800	900	3,500	3,100	2,500	1,800
3/4	10.7	8,075	1,300	700	2,700	2,300	1,900	1,300	2,400	1,200	4,900	4,200	3,400	2,400
13/16	12.7	9,405	1,600	800	3,100	2,700	2,200	1,600	2,800	1,400	5,600	4,900	4,000	2,800
7/8	15.0	10,925	1,800	900	3,600	3,200	2,600	1,800	3,300	1,600	6,600	5,700	4,600	3,300
1	18.0	13,300	2,200	1,100	4,400	3,800	3,100	2,200	4,000	2,000	8,000	6,900	5,600	4,000
1 1/16	20.4	15,200	2,500	1,300	5,100	4,400	3,600	2,500	4,600	2,300	9,100	7,900	6,500	4,600
1 1/8	23.7	17,385	2,900	1,500	5,800	5,000	4,100	2,900	5,200	2,600	10,500	9,000	7,400	5,200
1 1/4	27.0	19,950	3,300	1,700	6,700	5,800	4,700	3,300	6,000	3,000	12,000	10,500	8,500	6,000
1 5/16	30.5	22,325	3,700	1,900	7,400	6,400	5,300	3,700	6,700	3,400	13,500	11,500	9,500	6,700
1 1/2	38.5	28,215	4,700	2,400	9,400	8,100	6,700	4,700	8,500	4,200	17,000	14,500	12,000	8,500
1 5/8	47.5	34,200	5,700	2,900	11,500	9,900	8,100	5,700	10,500	5,100	20,500	18,000	14,500	10,500
1 3/4	57.0	40,850	6,800	3,400	13,500	12,000	9,600	6,800	12,500	6,100	24,500	21,000	17,500	12,500
2	69.0	49,400	8,200	4,100	16,500	14,500	11,500	8,200	15,000	7,400	29,500	25,500	21,000	15,000
2 1/8	80.0	57,950	9,700	4,800	19,500	16,500	13,500	9,700	17,500	8,700	35,000	30,100	24,500	17,500
2 1/4	92.0	65,550	11,000	5,500	22,000	19,000	15,500	11,000	19,500	9,900	39,500	34,000	28,000	19,500
2 1/2	107.0	78,000	12,500	6,300	25,500	22,000	18,000	12,500	23,000	11,500	45,500	39,500	32,500	23,000
2 5/8	120.0	85,500	14,500	7,100	28,500	24,500	20,000	14,500	25,500	13,000	51,500	44,500	36,500	25,500

**TABLE RE-19 – SAFE WORKING LOADS FOR SHACKLES**  
[In tons of 2,000 pounds]

<b>Material size (inches)</b>	<b>Pin diameter (inches)</b>	<b>Safe working load</b>
1/2	5/8	1.4
5/8	3/4	2.2
3/4	7/8	3.2
7/8	1	4.3
1	1 1/8	5.6
1 1/8	1 1/4	6.7
1 1/4	1 3/8	8.2
1 3/8	1 1/2	10.0
1 1/2	1 5/8	11.9
1 3/4	2	16.2
2	2 1/4	21.2

**TABLE RE-20 – NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS**

<b>Improved plow steel, rope diameter (inches)</b>	<b>Number of clips</b>		<b>Minimum spacing (inches)</b>
	<b>Drop forged</b>	<b>Other material</b>	
1/2	3	4	3
5/8	3	4	3 3/4
3/4	4	5	4 1/2
7/8	4	5	5 1/4
1	5	6	6
1 1/8	6	6	6 3/4
1 1/4	6	7	7 1/2
1 3/8	7	7	8 1/4
1 1/2	7	8	9

# Hand Tools

## Section 9.1

### Purpose

To establish and implement requirements associated with the safe use of hand and power tools in the work environment.

### References

OSHA 1926.300, 1910.242

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of all tool in the work environment.

### General Requirements

The following five basic tool safety rules can prevent the hazards involved in the use of hand and power tools:

1. Keep all tools in good condition with regular maintenance.
2. Use the right tool for the job.
3. Examine each tool for damage before use.
4. Operate according to the manufacturer's instructions.
5. Provide and use the right personal protective equipment (PPE).

The following general precautions should be observed by power tool users:

1. Never carry a tool by the cord or hose.
2. Never yank the cord or the hose to disconnect from the receptacle.
3. Keep cords and hoses away from heat, oil, and sharp edges.
4. Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits, and cutters.
5. All observers should be kept at a safe distance from the work area.
6. Secure work with clamps or a vise, freeing both hands to operate the tool.
7. Avoid accidental starting. The worker should not hold a finger on the switch while carrying a plugged-in tool.
8. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
9. Be sure to keep good footing and maintain good balance.
10. The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
11. All tools that are damaged shall be removed from service and tagged "Do Not Use."

### Machine and Tool Guards

Hazardous moving parts of a power tool need to be safeguarded. Guards, as necessary, should be provided to protect the operator and others from:

1. Point of operation.
2. In-running nip points.

# Hand Tools

## Section 9.1

3. Rotating parts.
4. Flying chips and sparks.

Safety guards must never be removed when the tool is being used.

### *Abrasive Wheel Tools*

Before an abrasive wheel is mounted, it should be inspected closely to be sure that it is free from cracks or defects. To test, wheels should be tapped gently with a light non-metallic implement. If they sound cracked or dead, they could fly apart in operation and so must not be used. A sound and undamaged wheel will give a clear metallic tone or "ring."

To prevent the wheel from cracking, the user should be sure it fits freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place, but not tight enough to distort the flange. Follow all of the manufacturer's recommendations.

Before use of any grinder, the operator needs to inspect abrasive wheel. If wheel is uneven or worn, operator needs to dress wheel with a wheel dressing tool. This will ensure an even surface to grind from.

Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed.

All non-portable grinders need to be securely mounted to ridged work surface. All manufactured guards must remain in place during use of grinder. All grinders must be used for their intended purposes only, no side grinding. Work rests shall be placed so there is never greater than a 1/8" opening between work rest and wheel.

Portable grinding tools need to be equipped with safety guards to protect workers, not only from the moving wheel surface, but also from flying fragments in case of breakage. These guards must never be removed during operation.

Portable grinders must never be secured to a work surface with the intentions of being used as a stationary grinder. Power switches must never be tampered with so grinders will run continuously.

### *Pneumatic Tools*

There are several dangers encountered in the use of pneumatic tools. The main one is the danger of being struck by the tool's attachments, or fastener from the tool.

Pneumatic tools that shoot nails, rivets, or staples, and operate at more than 100 pounds per square inch, must be equipped with a safety trigger, which keeps fasteners from being ejected unless the muzzle is pressed against the work surface.

All airlines equipped with Chicago fittings shall be secured to prevent connections from dislodging.

If an air hose is more than ½ inch in diameter, a safety excess flow valve must be installed at the source of the air supply to shut off the air automatically in case the hose breaks.

The same precautions should be taken with an air hose that are recommended for electric cords.

Using compressed air for cleaning tasks can be a risky proposition. Compressed air cannot be used for cleaning purposes (work surfaces) unless the pressure is reduced to less than 30 p.s.i., and then only when effective chip guarding and personal protective equipment is used.

### *Fuel-Powered Tools*

The most serious hazard with fuel-powered tools comes from fuel vapors that can burn or explode and give off dangerous exhaust fumes.

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## Section 9.1

The worker must be careful handling, transporting, and storing the gas or fuel in approved flammable liquid containers, according to proper procedures for flammable liquids.

Before the tank for a fuel-powered tool is refilled the user must shut the engine down and allow it to cool to prevent accidental igniting of hazardous vapors.

If a fuel-powered tool is used inside a closed area, effective ventilation and/or personal protective equipment is necessary to avoid breathing carbon monoxide. Fire extinguishers must be available in the area.

### *Hydraulic Tools*

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. Hydraulic jacks exposed to freezing temperatures must be filled with adequate antifreeze liquid.

The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

All jacks must have a device that stops them from jacking up too high. The manufacturer's load limit must be permanently marked in a prominent and should not be exceeded.

A jack should never be used to support a lifted load. Once the load has been lifted, it must be immediately blocked up.

Use wooden blocking under the base if necessary to make the jack level and secure.

Proper maintenance of jacks is essential for safety. All jacks must be lubricated regularly. In addition, each jack must be inspected at least once every 6 months when it is used at one site. Jacks that are sent out need to be inspected when sent out and when returned. Jacks that are to be subjected to abnormal loads or shock must be inspected before use and immediately thereafter.

To set up a jack, make certain of the following:

1. The base rests on a firm level surface.
2. The jack is correctly centered.
3. The jack head bears against a level surface.
4. The lift force is applied evenly.

### *Tool Quality & Design*

Tools made from good quality, durable materials will help you avoid injuries caused by tools breaking or slipping on the job. Metal tool parts should be strong enough to resist bending, cracking, chipping, or excessive wear from normal use.

Tools work best when you can easily hold, move, and use the tool - avoid using tools that are too heavy or large for you to control.

### *PPE*

Wear eye protection when chips, splashes, sparks, dust, or debris could get into your eyes. Some examples of jobs where eye protection should be worn include:

1. using hammers/mallets
2. chisels/punches
3. bolt cutters
4. staple guns
5. drills
6. abrasive wheels

# Hand Tools

## Section 9.1

7. saws
8. or any other tool that could create chips, pieces, or splashes.

You can protect yourself from lacerations while handling abrasive materials by wearing cut-resistant gloves. Recent glove designs have fine metal mesh woven in with cut-resistant fibers - they are more flexible and comfortable than metal mesh alone.

Another type of protective glove is made with a material that absorbs vibration and the shock of impacts. Wear them for sanding, repeated hammering, etc.

Ear protection should be used where high decibel levels exist. Even short-term overexposure to excessive noise can be damaging.

Tool use might also contribute to your need to wear a respirator.

For protection of feet and legs from falling or rolling, sharp objects, molten metal, hot surfaces, and wet slippery surfaces, workers should use the appropriate foot guards:

1. Leggings
2. Metatarsal guards
3. Steel-Toe Shoes/Boots

### *Inspection*

Tools should be inspected before and after each use. Some signs of damage and wear to look for include cracked or loose handles, casings, or guards; bent shafts or spindles; worn, cut, brittle, or frayed cords and hoses; loose or leaking fittings; dull, rounded, or chipped cutting surfaces; gouges or scrapes on gripping surfaces; mushroomed striking surfaces, etc.

### **Training**

Employees shall receive training upon new hire as applicable and periodically thereafter.

# Powder-Actuated Tools

## Section 9.2

### Purpose

To establish and implement requirements associated with the safe use of powder-actuated tools in the work environment.

### References

OSHA 1926.302, 1910.243

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employees*

Shall have read and understand their responsibilities with respect to proper and safe use of all powder-actuated tools in the work environment.

### General Requirements

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that they must be operated only by specially trained employees.

Safety precautions to remember include the following:

1. These tools should not be used in an explosive or flammable atmosphere.
2. Suitable eye and face protection for the operator and assistants is essential when using a powder-actuated tool.

3. Before using the tool, the worker should inspect it to determine that it is clean, all moving parts operate freely, the barrel is free from obstructions, and the manufacturer recommended shield, guard, or attachments are in place.

4. The tool must never be pointed at anybody.

5. The tool should not be loaded unless it's to be used immediately. A loaded tool should not be left unattended. The tool should never be left unattended where it would be available to unauthorized persons.

6. Hands should be kept clear of the barrel end.

To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool.

The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. A tool for high-velocity loads must be designed so that it will not fire unless it has this kind of safety device.

All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

### Misfires

If a powder-actuated tool misfires, the employee should wait at least 30 seconds then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, and then carefully remove the load according to the tool manufacturer's instructions. The bad cartridge should be put in water.

# Powder-Actuated Tools

## Section 9.2

If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired. Repairs must meet the tool manufacturer's specifications.

### **Fasteners**

When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not be fired into material that would let them pass through to the other side.

Fasteners must not be driven into very hard or brittle materials which might chip, splatter, or make the fastener ricochet.

High-velocity tools may not be used to drive fasteners into materials like brick or concrete any closer than 3 inches to an unsupported edge or corner. High-velocity tools may not be used to place fasteners in steel any closer than 1/2 inch from an unsupported corner edge unless a special guard, fixture, or jig is used.

An alignment guide must be used when shooting a fastener into an existing hole.

A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

### **Training**

Employees shall receive training upon new hire as applicable and periodically there after.

# Welding and Cutting

## Section 10.1

### Purpose

Establish guidelines to be followed whenever any of our employees work with welding and cutting equipment. The procedures here establish uniform requirements designed to ensure that welding and cutting safety training, operation, and maintenance practices are communicated to and understood by the affected employees. These requirements also are designed to ensure that procedures are in place to safeguard the health and safety of all employees.

### References

OSHA 1926.350

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors in the execution of the program by providing training resources, technical support, and other related materials to ensure program effectiveness. This individual shall also periodically audit job-sites and production facilities to monitor program implementation and report their findings to the Manager and / or Supervisor.

#### *Employee*

Shall follow and be accountable to all provisions of this policy and report to their Supervisor any condition that presents a hazard or danger to employee safety.

### Operating Procedures

#### *Compressed Gas Cylinders*

Handling, storage, and use of compressed gases around the workplace represent a number of hazards. Questions are resolved through supervisors.

Approved practices include:

1. Keep valve protection cap in place at all times when a cylinder is not in use.
2. Use care in handling and storage of cylinders, safety valves, relief valves, etc., to prevent damage.
3. When cylinders are hoisted, secure them on a cradle, or pallet.
4. Secure cylinders in an upright position at all times, especially when moving them by machine. Use carriers or carts provided for the purpose when cylinders are in use.
5. When in use, isolate cylinders from welding or cutting or suitably shield them.
6. Maintain a distance of at least 20 feet or provide a non-combustible barrier at least five feet high in separating fuel gas cylinders from oxygen cylinders. This applies to indoor and outdoor storage.
7. The supervisor will designate well-ventilated storage areas for cylinders inside buildings.
8. Care will be taken to keep storage areas out of traffic areas or other situations where they could be knocked over, damaged, or tampered with.
9. Locate fuel gas and oxygen manifolds in well-ventilated areas.
10. Before a regulator is removed, check that the valve is closed and the gas released from the regulator.
11. Keep cylinders, cylinder valves, couplings, regulators, hoses, and apparatus free of oily or greasy substances.
12. Keep empty compressed gas cylinders appropriately marked and their valves closed and caps on.
13. Store full and empty cylinders apart. Group cylinders by types of gas.

# Welding and Cutting

## Section 10.1

14. Use old stock before newer stock.

Prohibited practices include:

1. Use of valve protection caps for lifting cylinders.
2. Use of damaged or defective cylinders. The supervisor will provide appropriate tags and designate an appropriate storage area for these cylinders.
3. Use of a wrench or hammer to open cylinder valves.
4. Attempting to repair a cylinder valve. The supplier should be contacted.
5. Mixing of gases.
6. Use of a magnet or choker sling when hoisting cylinders.
7. Use of a bar to pry cylinders from frozen ground. Warm, not boiling, water is used to thaw cylinders.
8. Cylinders shall not be taken into confined spaces.
9. Storing cylinders near elevators, stairs, or gangways.
10. Using cylinders as rollers or supports.

### *Gas Welding and Cutting*

Safe practices in using compressed gases and torches include:

1. Cracking cylinders and attaching regulators according to industry practice.
2. Putting caps on header hose connections and manifolds when not in use.
3. Keeping all hoses, regulators, cylinders, valve protection caps, couplings, apparatus, and torch connections free of grease and oil, especially those involving oxygen.

4. Using fuel gas hose and oxygen hose of different colors.

5. Inspections: \* All hoses before every shift; \* All torches. Only devices designed for the purpose will be used to clean torch tips.
6. Use only friction lighters to ignite torches.
7. Removal of torches and hoses and positive shut-off of gas sources from confined spaces when leaving a confined space project for any substantial period of time.

Prohibited practices include:

1. Interchange of hoses, including use of adapters, between fuel gas and oxygen sources.
2. Placement of anything on or near a manifold or cylinder top that may interfere with the prompt shut-off in case of an emergency.
3. Taping more than four inches out of every 12 inches in joining fuel gas and oxygen hoses.
4. Using defective hose or torches.
5. Use of oxygen for personal cooling, cleaning off of surfaces, ventilation or blowing dust from clothing.

### *Arc Welding and Cutting/Inert-Gas Metal-Arc Welding*

Only manual electrode holders, designed for arc welding and cutting, and have the capacity to safely handle the maximum rated current required by the electrodes shall be used. Safe practices in using arc welders include:

1. Use of holders, cable, and other apparatus shall be used according to manufacturers' specification and kept in good repair.
2. Frames of arc welding and cutting machines shall be grounded either through 3<sup>rd</sup> wire in the cable or through a separate wire, which is grounded at the source of the current.

# Welding and Cutting

## Section 10.1

3. When leaving electrode holders unattended, electrodes are removed and holders placed so that accidental electrical contact is not made.
4. Turning off the arc welding or cutting machine when it is to be left unattended for a substantial period of time or when it is being moved.
5. Immediate reporting of any defective equipment to the site supervisor.
6. Use of non-combustible or flame-proof screens to protect employees and passersby from arc rays wherever practicable.
7. Keeping chlorinated solvents at least 200 feet from an inert-gas metal-arc welder or providing adequate shielding. Surfaces prepared with chlorinated solvents will be thoroughly dry before welding.
8. Appropriate filter lenses shall be worn by the individual performing the welding operations and anyone in the immediate area exposed to the flash when screening or shielding is not feasible.
9. Welders and other employees exposed to the direct rays shall have exposed areas adequately protected to prevent burns to the skin.
10. When performing work on stainless steel, adequate ventilation or respiratory protection shall be implemented to protect against dangerous concentration of toxic fumes and gases.

Prohibited practices include:

1. Using cables with repairs or splices within 10 feet of the holder that are not equivalent in insulating value to the original cable.
2. Use of pipelines with flammable gases or liquids or conduits with electrical circuits as ground return.
3. Dipping hot electrode holders into water.

### *Fire Prevention*

The site supervisor will use this guide to assess fire hazards at a job site:

1. When the object to be welded, cut, or heated can be moved, and all fire hazards can be moved to a safe distance, then the welding, cutting, brazing or heating can be done.
2. When the object to be welded, cut, or heated cannot be moved, and all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.
3. When there is a welding, cutting, or heating task, and concentrations of flammable paints, dusts, or other flammable compounds are present, then welding, cutting, brazing or heating is not allowed.

All employees will be required to:

1. Wear flame-resistant clothing.
2. Have a firewatcher in attendance when they are welding.
3. Remove all combustible material at least 35 feet from the work area and to move away from combustible materials or cover combustibles with fire resistant material.
4. Clean and purge containers which may have held combustible material before applying heat.
6. Get a hot work permit and follow its safety precautions.

The company will provide suitable fire extinguishing equipment based on the site supervisor's assessment of hazards. The site supervisor will ensure the equipment is maintained for immediate use.

### *Fire Watchers*

1. When normal fire prevention measures are not sufficient, the company, based on the site supervisor's assessment, will assign firewatchers.

# Welding and Cutting

## Section 10.1

2. Fire watchers will provide additional safeguards against fire during and after operations.
3. The Company will provide training for firewatchers on the specific fire hazards and equipment available.
4. Do not fight fires beyond the incipient stage unless trained to do so.

### *Ventilation*

1. All ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits.
2. Oxygen shall not be used for ventilation purposes, cooling or blowing dust off clothing.
3. When general mechanical or local exhaust ventilation can not provide sufficient ventilation, proper respiratory protection must be used by workers according to Section 5.2.
4. The site supervisor will determine the number, location, and capacity of ventilation devices.
5. Notify your supervisor before welding, cutting, or heating is done on metal coated with materials that contain the following:
  - a. Zinc
  - b. Lead
  - c. Cadmium
  - d. Chromium
  - e. Beryllium
  - f. Nickel
  - g. Copper
  - h. Stainless Steel

Employees will be required to:

1. Know the symptoms of fumes and gases and get out of the area if they should develop.
2. Perform atmospheric testing as needed.
3. Keep a safe distance from the fume or gas plume.

### **Personal Protective Equipment**

1. Air line respirators will be provided for confined space jobs when sufficient ventilation cannot be provided without blocking the exit. Employees will be trained on the proper use of their respirators.
2. When known or unknown toxic materials are present in a job, respirators will be provided that match the hazard for all employees. The hazards include zinc or zinc-bearing base or filler metals, lead base metals, cadmium-bearing filler metals, chromium-bearing or chromium-coated metals, mercury, nitrogen dioxide, and beryllium. Due to beryllium's extreme danger, both ventilation and air line respirators will be used.
3. Where screens are not sufficient to protect welders and passersby from arc radiation, the company will provide eye protection with appropriate helmets, ANSI approved filter lens goggles, or hand shields. The helmets and shields will be maintained in good repair.
4. When a toxic preservative is detected on a surface in a confined space, air line respirators will be provided (or the toxic coating will be stripped from at least four inches around the heated area).

Other PPE used may include:

1. Flame resistant aprons to protect against heat and sparks.
2. Leggings and high boots for heavy work.

# Welding and Cutting

## Section 10.1

3. Ankle-length safety shoes worn under pant legs to keep from catching slag.
4. Shoulder cape and skull cap to protect against overhead welding.
5. Ear plugs or ear muffs on very noisy jobs like high velocity plasma torches.
6. Insulated gloves to protect against contact with hot items and radiation exposure.
7. Safety helmets to protect against sharp or falling objects.
  - a. Employees are asked to wear wool, leather, or cotton treated clothing to reduce flammability for gas shielding arc welding. Long sleeves and pants without cuffs / front pockets are recommended to avoid catching sparks.
2. When a coating is found to be highly toxic or flammable, such as lead-painted surfaces, it will be abated from the area to prevent fire or injury.

### Electrical Equipment

Approved safe practices include:

### Confined Spaces

1. Confined spaces, such as manholes, tunnels, trenches and vaults, are particularly hazardous working areas made more dangerous by welding. Ventilation is a primary consideration and will be designated by the site supervisor or other competent employee designated by the company.
2. An employee will be stationed outside a permit required confined space to maintain communication with those entering and ready to render emergency assistance.
3. When confined spaces are entered, the company will provide a means of quickly removing a worker. An attendant with a rescue procedure will observe the worker at all times and be able to put the rescue plan into effect.

1. Do not arc weld while standing on damp surfaces.
2. Properly ground, install, and operate equipment.
3. Do not use defective equipment.
4. Use well-insulated electrode holders and cables.
5. Insulate yourself from both the work and the metal electrode and holder.
6. Don't wrap a welding cable around your body.
7. Wear dry gloves and leather work boots.
8. Do not use damaged or bare cables and connectors.
9. In case of electric shock, don't touch a victim. Turn off the current at the control box and then call for help. After the power is off, you may perform cardiopulmonary resuscitation (CPR) if necessary.

### Hot Work

For the purposes of this program, Hot Work is defined as any activity that generates flame, spark, ignition, or heat. Examples of hot work activities include, but are not limited to, electric or gas welding, cutting, brazing, soldering, grinding, etc.

### Flammable, Toxic, or Hazardous Materials

1. The company will designate a qualified person to test the flammability of toxicity of unknown coatings.

Whenever Hot Work will be performed, if required, the Job Superintendent or Supervisor shall assure that a Hot Work Permit, listed as *Appendix A* of this policy, is issued and in effect for the duration of the work.

# Welding and Cutting

## Section 10.1

### *Maintenance*

Any deficiencies found in our welding and cutting equipment are repaired, or defective parts replaced, before continued use. However, no modifications or additions that affect the capacity or safe operation of the equipment may be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, must be changed accordingly. In no case may the original safety factor of the equipment be reduced.

### **Training**

It is the policy of The Company to permit only trained and authorized personnel to operate welding and cutting equipment.

All employees have a general obligation to work safely with and around welding and cutting operations.

Training for fire watcher personnel shall be performed in accordance with Section 6.1 Fire Prevention Plan.

### **Appendices**

Appendix A – Hot Work Permit

**Appendix A  
Hot Work Permit**

**HOT WORK PERMIT  
(Permit must be displayed at job location)**

**Valid for current shift**

	<b>Checklist</b>	<b>Yes</b>	<b>N/A</b>
<p>This Hot Work Permit is required for work involving electric or gas welding, cutting, brazing, soldering, grinding, or similar spark producing operations.</p> <p>Department: _____ Date: _____            Location: _____ Shift: _____            Job description: _____            Object being worked on: _____</p> <hr/> <p>I have inspected the location where this job is to be done. I have checked for compliance with safety precautions listed on the adjacent checklist.</p> <hr/> <p align="center">(Person(s) performing work)</p> <hr/> <p align="center">(Fire watch)</p> <hr/> <p align="center">(Authorized individual(s)/Supervisor)</p> <p>Time started: Date: _____ Time: _____ AM/PM            Expiration: Date: _____ Time: _____ AM/PM</p> <p><b>Other line procedures needed:</b></p> <p>Line opening <input type="checkbox"/> Confined space <input type="checkbox"/>            Lockout <input type="checkbox"/> None <input type="checkbox"/></p> <p><b>Flame or sparking device to be used:</b></p> <p>Acetylene Torch <input type="checkbox"/> Abrasive Saw <input type="checkbox"/>            Arc Welding <input type="checkbox"/> Portable Grinder <input type="checkbox"/>            Propane Torch <input type="checkbox"/> Other <input type="checkbox"/></p> <p><b>Emergency provisions:</b></p> <p>1. Location of nearest phone: _____            _____</p> <p>2. Number dialed for emergency services:            _____</p> <p>3. Location of nearest access/egress point:            _____            _____</p> <p>4. Location of nearest fire fighting equipment:            _____            _____</p>	1. Combustible material within 35 feet of work removed from area, shielded or covered with wet or flame-proof tarpaulins or metal guards.		
	2. Combustibles on floor, walls and ceiling removed or wet down.		
	3. All floor and wall openings covered to prevent sparks from falling to lower floors or penetrating adjacent areas.		
	4. Ducts or conveyors shutdown to prevent sparks from being conveyed to distant combustibles.		
	5. Lockout procedures followed.		
	6. Flame proof curtains or shields erected around welders to protect personnel from flash.		
	7. Fire watch provided and will be maintained after completion of job.		
	8. Proper fire extinguisher(s) or charged water hose provided.		
	9. Equipment purged, flused and tested for LEL.		
	10. Proper respiratory protection used.		
	11. Area roped off.		
	12. Sewers and drains covered.		
	13. Atmospheric Test Flammable vapors must be less than 10% LEL _____ Reading _____ and _____ (tester) (witness)		
	14. Other precautions: _____ _____ _____ _____		

# Electrical Safety

## Section 11.1

### Purpose

The Company has established the following policy to protect employees from the hazards associated with working directly on, adjacent to, or in close proximity to electrical energy sources and the hazards they present.

### References

OSHA 1926.400, 1910.303

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors in the implementation of this policy for program effectiveness and employee protection. They shall periodically audit job-sites and / or production environments to assure that all applicable aspects of the program are followed.

#### *Employee*

Shall be responsible for comprehension of this policy and will be held accountable for executing their work tasks with adherence to all applicable requirements.

### General Requirements

Employees shall not be permitted to work in close proximity to any part of an electrically energized conductor, circuit, or related component(s) that employees could contact in the performance of their work. The only exception to this requirement will be when the employee can safely perform their work if the energized component can be de-energized by grounding, or grounding the component by approved insulation and/or other protective means. If the electrical device requires de-energization, the Company's Lockout / Tagout Program identified in Section 11.3 of this

manual shall be followed. The following general precautions shall be observed when working on any electrically energized component or system:

1. All electrical conductors, circuits, and related components to be installed shall be approved and meet applicable State and Federal codes and / or regulations.
2. Only qualified individual(s) trained to perform electrical work shall perform installation, maintenance, or repairs on electrical wiring, tools, equipment, and / or machinery.
3. Employees shall treat all electrical conductors and associated components as energized systems.
4. Employees shall wear suitable personal protective equipment when engaging in work on energized components.
5. Employees shall test applicable systems with an approved testing device to verify the status of electrical components prior to embarking on work tasks.
6. Employees shall not wear rings, watches, or other conductive objects while working on energized electrical components.
7. Employees shall not defeat, disable, or alter electrical interlocks that render them inoperable.
8. Fuses shall be replaced with like equipment that meets the same specifications as the original.
9. Metal ladders shall not be used when working on any electrical equipment.
10. Employees shall maintain a minimum clear space of 3' in front of all fixed and temporary breaker panels, disconnects, and motor control centers.

# Electrical Safety

## Section 11.1

11. Defective or damaged electrical equipment, tools, and extension cords shall not be used and tagged inoperable or removed from the job-site. The job-site Supervisor shall be notified of any defective electrical equipment.
12. Excavations shall never be started before notifying applicable state or local authorities to identify the presence of electrical or other underground utilities.
13. Employees shall never approach a downed overhead power line. Notify the applicable Supervisor and assist in the effort to keep all employees away from the hazard.
14. All low voltage powered tools and/or equipment shall be equipped with a ground fault circuit interrupter to minimize shock hazards.
15. Electrical equipment outfitted with capacitors shall be identified and properly grounded to release stored energy prior to any maintenance.
16. Temporary lighting shall be equipped with guards to prevent accidental contact with the bulb. Broken bulbs shall be replaced.
17. Light stringers and extension cords shall be suspended with non-conductive materials.
18. Romex or other similar conductor shall not be affixed with receptacles for use as an extension cord.
19. Portable generators must be properly grounded.

### Overhead Power Lines

If any work will be performed adjacent to overhead power lines, the following minimum safe approach distances shall govern all activities:

Voltage Range	Minimum Safe Distance	
	(Feet)	(Meters)
(Phase to phase) 0 to 300 V	3	.9
Over 300V to 50 kV	10	3.05
Over 50 kV to 200 kV	15	4.60
Over 200 kV to 350 kV	20	6.10
Over 350 kV to 500 kV	25	7.62
Over 500 kV to 750 kV	35	10.67
Over 750 kV to 1000 kV	45	13.72

All work groups preparing for work in proximity to overhead power lines shall conduct a pre-job safety meeting to review applicable hazards, controls, and work procedures that will be utilized. The Job-Site Supervisor, or their designee, shall conduct this meeting and document the information covered, meeting attendees, and the date performed.

The Manager or Supervisor shall be responsible for all applicable aspects of work preparation and progression with respect to overhead power lines. They shall consult with local utility owners to determine service voltages of the utility as well as the minimum safe approach distance to that utility. This individual(s) shall also be responsible for any equipment that has the opportunity to contact overhead power lines and establish necessary protocols to prevent such contact. A spotter shall be utilized to assure safe approach distances are satisfactorily maintained at all times. All overhead power lines shall be treated as live or energized at all times.

### Qualified Persons

When a qualified person is working in the vicinity of overhead power lines, whether in an elevated position or at grade elevation, the individual may not approach or take any conductive object or material without an approved insulating handle closer to the exposed energized parts than shown in the table below unless:

# Electrical Safety

## Section 11.1

1. The person is insulated from the energized part (insulated gloves, sleeves, face protection, if necessary) rated for the voltage involved are considered to be insulation for the person from the energized parts on which work is performed, or
2. The energized part is insulated both from all other conductive objects at a different potential from the person, or
3. The person is insulated from all conductive objects at a potential different from that of the energized part.
1. A detailed, written description of the work progression that is task specific.
2. Information regarding de-energization of the electrical system.
3. Information and procedures with respect to grounding the equipment.
4. Additional PPE that shall be utilized for the work.
5. Any additional safety procedures that shall be implemented for the work.

Voltage Range (Phase to phase)	Minimum Safe Distance	
	(Feet)	(Meters)
0 to 300 V	Avoid contact	
Over 300 V to 750 V	1'6"	30.5 cm
Over 750 V to 2 kV	1'6"	46.0 cm
Over 2kV to 37 kV	2'0"	61.0 cm
Over 15 kV to 87.5 kV	3'0"	91.0 cm
Over 37 kV to 87.5 kV	3'6"	107.0 cm
Over 87.5 kV to 121 KV	4'0"	122.0 cm
Over 121 kV to 140 kV	4'6"	137.0 cm

### Unqualified Persons

When an unqualified person is working in an elevated position near overhead power lines, the location shall be such that the person and the longest conductive object they may contact cannot come closer to any unguarded, energized overhead line than the following distances:

Voltage Range (Phase to phase)	Minimum Safe Distance	
	(Feet)	(Meters)
0 to 500 kV	10	305 cm
Over 50 kV	10' + 4"s for every 10 kV over 50 kV	

### High Voltage Work

For the purposes of this policy, high voltage work will consist of any activity performed on electrical circuits, conductors, or other components rated at or over 600 volts. Qualified persons performing this work shall receive additional training that shall consist of:

### Temporary Wiring

Temporary wiring shall be guarded, buried, or elevated to prevent accidental contact by personnel and/or equipment. When temporary wiring must be suspended, it shall be suspended with non-conductive materials that shall not cause abrasion or damage to the insulation layer of the conductor. If the wiring is suspended over a roadway or active thoroughfare, signage or alternative identification shall be implemented to create high visibility of the overhead wiring. Temporary wiring shall be suspended at a minimum height of 7' or higher as conditions warrant providing protection from physical contact. If temporary wiring shall be buried, it shall be readily identifiable through signage or alternative methods that distinguish the underground utility.

Temporary lighting strings shall consist of non-conductive lamp sockets and connections permanently molded to the conductor insulation. Lighting strings shall be equipped with protective cages to protect bulbs from accidental contact. Broken bulbs shall be replaced. Portable trouble lights equipped with receptacles shall not be used to power hand tools or other electrical equipment.

Extension cords shall be of an approved three-wire, grounded design. Conductor insulation shall be of the type suitable for the conditions or as specified by contractual obligations. The rated specifications of the extension cord shall not be exceeded. Cords shall be continuous in length and free from splices. Worn or frayed

# Electrical Safety

## Section 11.1

cords shall not be used and removed from service and tagged "Do Not Use". Defective cords shall be removed from the work environment and discarded or delivered to a qualified person for maintenance. Extension cords shall be protected from damage. They shall not be routed through doorways, holes, or other similar locations that will subject the cord to physical damage. Extension cords shall be routed overhead whenever feasible via non-conductive materials in an effort to prevent trip hazards. Cords shall not be run along the ground where mobile equipment can subject such cords to physical damage.

Employees shall inspect extension cords each day for wear and / or damage.

### **Switch Breakers, Disconnects, and Overcurrent Protection**

Switches, fuses, and circuit breakers shall be plainly marked, labeled, or otherwise arranged to permit identification of circuits or equipment controlled by them. Switches shall be of an approved, enclosed design with a grounded enclosure installed to minimize the possibility of accidental operation. Switches and breakers shall be provided with a means of locking in the "Off Position". Additionally, fuse cabinets and circuit breaker cabinets shall be equipped with locking type doors. All circuit panels, switch breakers, motor control centers shall be equipped with a dead front to prevent accidental contact with energized electrical components.

### **Ground Fault Protection**

The Company has an established Ground Fault Protection Program, which can be found in Section 11.2 of this manual.

### **Wet Locations**

In wet or damp locations where work will be conducted, protection shall be provided where there is a danger of electrical shock. Stationary or portable electrical equipment such as pumps, heaters, welders, transformers, or panels, shall be connected to a circuit protected by ground fault circuit protection.

Whenever practical, alternative tools or equipment powered by air, battery, or hydraulics shall be substituted.

### **Confined or Enclosed Work Spaces**

No employee shall work in a confined or enclosed area (such as a manhole or vault) that contains exposed energized parts unless the equipment can be safely de-energized or other protective barriers, insulation, or shields can be installed to avoid inadvertent contact with these parts.

### **Conductive Materials and Equipment**

Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors, circuits, or other components. If an employee must handle long, dimensional conductive objects (such as ductwork, pipe, cable tray, conduit, unistrut) in area with exposed live parts, the Supervisor shall ensure work practices (such as the use of insulation, guarding, shielding, or material handling techniques) minimize or eliminate the hazard.

### **Temporary Panel Use and Construction**

Temporary panels, if constructed for use on projects or operating areas shall be of an approved type and design for the type of service required. The panel shall be equipped with ground fault circuit interrupter (GFCI) protection. The panel shall be labeled to identify the service voltage provided. If the panel shall be exposed to the elements, it shall be enclosed or otherwise designed with weather-proof materials to withstand the conditions. GFCI's shall be tested and documented at least monthly.

### **Training**

Both qualified and unqualified employees shall receive training on all relevant aspects of this policy upon new hire as applicable or as site or operating conditions warrant. Training shall occur periodically thereafter.

# Ground Fault Protection

## Section 11.2

### Purpose

The Company has established the following Ground Fault Protection Policy to protect employees from the hazards of improperly grounded electrical equipment and to identify procedures in an effort to eliminate all injuries that can potentially result from possible malfunctions, improper grounding, and defective electrical tools.

### References

OSHA 1926.400, 1910.303

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors in the execution of the program by providing training resources, technical support, and other related materials to ensure program effectiveness. This individual shall also periodically audit job-sites and production facilities to monitor program implementation and report their findings to the Superintendent and / or Supervisor.

#### *Employee*

Shall follow and be accountable to all provisions of this policy and report to their Supervisor any condition that presents a hazard or danger to employee safety. Employees shall perform daily visual inspections of all electrical tools and cords for proper operation, damage, or defect.

### General Requirements

#### *Ground Fault Circuit Interrupters (GFCI)*

All 120 volt, single phase, 15 and 20 ampere receptacle outlets which are not part of the

permanent wiring of a building or structure shall have approved ground fault circuit interrupters for personnel protection. GFCI's shall also be utilized for work areas that are wet, damp, or subject to excessive moisture.

#### *Assured Grounding Program*

The Company shall establish and implement the following program for all cord sets and receptacles which are not a part of the building or structure.

1. A competent person(s) shall be designated at job-sites and / or production areas that are responsible for implementation of the program.
2. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. This test shall verify that grounding conductors are connected to the proper terminal. The above test shall be performed prior to first use, before equipment is returned to service following repairs, or before equipment is used after any incident (such as being run over by equipment) which can be reasonably expected to have caused damage.
3. In addition to the above continuity test, all cord sets shall be checked for signs of damage to insulation, attachment caps, plugs and / or receptacles. If found to be defective, the equipment shall be tagged "Do Not Use" and removed from service for testing, disposal, or repair.
4. All electrical tools shall be inspected for signs of damage to insulation, exposed components, attachment caps, receptacle plugs. If found to be defective, the equipment shall be tagged "Do Not Use" and removed from service for testing, disposal or repair.
5. Test performed in accordance with this program shall be conducted at intervals not to exceed three (3) months on all cord sets and receptacles which are not part of the building or structure, and any company-owned cord or plug set that is required to

# Ground Fault Protection

## Section 11.2

be grounded. Evidence of such test shall be visible by attaching a color-coded identifier to the tested equipment in accordance with the following table:

Quarter	Color
January 1 to March 31	White
April 1 to June 30	Green
July 1 to September 30	Red
October 1 to December 31	Orange

Identification shall be by the appropriate colored tape which will adhere to the cord set cord and plug-connected equipment. Color coded tape shall be placed on the cord adjacent to the intersection of the cord and receptacle plug or receptacle box. At the beginning of a new quarter, and after a new continuity test has been successfully completed, the previous quarter's color should be removed and replaced with the correct color code recognized for that quarter.

### *Daily Visual Inspections*

Daily visual inspections shall be made to determine any external defects or indications of internal damage prior to use. All employees performing these inspections shall, at minimum, check;

1. Cord sets for signs of damage to insulating coverings, attachment caps, plugs, and receptacles. Defective equipment shall be tagged "Do Not Use" and delivered to the Job-Site Supervisor.
2. Electrical tool cords for signs of damage to insulating case and coverings, exposed components, attachment caps, and receptacle plugs. Defective equipment shall be tagged "Do Not Use" and delivered to the Job-Site Supervisor.
3. Fixed cord sets and receptacles that are exposed to damage shall be checked for deformed or missing receptacles, plugs, guard plates, and insulation materials.

### *Monthly Inspections*

Applicable equipment, such as temporary electrical panels, shall be tested each month

by a qualified person to assure all GFCI outlets are working satisfactorily. These tests can be documented by utilizing the GFCI Report, listed as *Appendix A* of this document.

### **Training**

All employees shall receive awareness training on this program including hazard recognition, expectations of the Company with regard to individual responsibilities. Employees assigned with the testing requirements of the program shall receive instruction regarding use of applicable testing equipment, explanations of applicable hazards, and precautions to be taken.

### **Appendices**

Appendix A – GFCI Report

## Appendix A GFCI Report

MONTH: \_\_\_\_\_ 20\_\_

Number	Equipment ID Number	Location Where Inspected	Equipment OK		Out of Service
			Yes	No	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
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31					
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37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Ground Fault Protection

Location: \_\_\_\_\_

Tested By: \_\_\_\_\_

## Appendix A GFCI Report

MONTH: \_\_\_\_\_ 20\_\_

Number	Equipment ID Number	Location Where Inspected	Equipment OK		Out of Service
			Yes	No	
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
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73					
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76					
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78					
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81					
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83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					

Ground Fault Protection

Location: \_\_\_\_\_

Tested By: \_\_\_\_\_

# Lockout / Tagout

## Section 11.3

### Purpose

The Company has developed the following policy to prevent injuries to employees and damage to equipment through the use of energy isolation devices and established safe work practices to disable equipment and control energy sources. The procedures outlined in this policy address energy isolation protocols and training requirements for employees in the prevention of unexpected energization, pressurization, or release of stored energy that cause injury.

### References

OSHA 1926.417 and 1910.147

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors with this program by providing applicable employee training and technical assistance. The Safety Manager shall also periodically audit projects to ensure that the program is being followed. This individual shall communicate any deficiencies to the Job Supervisor at the time of observation and establish corrective action.

#### *Employee*

Shall be responsible for understanding their responsibilities with respect to this program and accountable for their workplace actions. **Employees shall take Lockout / Tagout work instructions from their Supervisor only.** If an Owner's representative requests an employee to lockout or tagout equipment or machinery, it must be communicated to the employee's supervisor for authorization. The exception to this requirement would be in the event of a true emergency or immediately life-threatening situation.

### Application

These procedures shall apply to all Company workplaces where energy isolation of any type may be required, unless a more stringent system (owner required) is in place and governs the service or maintenance of equipment for any of the following activities:

1. Construction
2. Inspection
3. Installation
4. Modification
5. Maintenance
6. Adjustment
7. Servicing
8. Commissioning
9. Restoring Equipment to Operation

For the purposes of this policy, if a device, component, or other piece of equipment is capable of being locked out, then it shall be effectively locked out to afford our employees the highest level of protection.

### Definitions

#### *Affected Employee*

An employee whose job requires them to:

1. Operate or use a machine or equipment on which servicing, maintenance, or installation is being performed under Lockout / Tagout.
2. Work in an area in which such servicing maintenance, or installation is being performed.

# Lockout / Tagout

## Section 11.3

### *Authorized Employees*

This is an employee who locks or implements a Lockout / Tagout procedure on machines or equipment to perform servicing, maintenance, or installation on that machine or equipment. An employee can be both an authorized and an affected employee when the affected employee's duties also include performing maintenance or service on equipment, or a machine that must be locked out or tagged out.

### *Energized*

This is equipment, machinery, or components that are connected to energy source or contain residual or stored energy. For the purposes of this policy, energized systems or components can be as follows:

1. Electrical
2. Mechanical
3. Hydraulic
4. Pneumatic
5. Chemical
6. Steam
7. Gravity
8. Other Pressurized Systems

### *Energy Isolation Devices*

These are mechanical devices that physically prevent the transmission or release of energy. These devices include, but are not limited to:

1. Circuit Breakers
2. Disconnects
3. Valves
4. Slip Blinds
5. Slide Gates
6. Block / Bleed

Selector switches, push button switches, breaker switches, local disconnects, and valves **shall not be used** as the sole remedy for energy isolation.

Isolation devices shall only be considered locked out if they are affixed with a lock or a combination of lock and other component such as a hasp, chain, or other lockout device that will prevent the equipment from re-energizing.

### *Energy Source*

Any device, equipment, machinery, or other component providing electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

### *Lockout*

The placement of a lockout device on an energy isolation source in accordance with an established procedure where the energy isolating device and equipment being controlled cannot be operated until the lockout device is removed.

### *Lockout Device*

A device that is utilized as a positive means such as a lock, which is controlled by a key, that holds an energy isolating device in an inoperable state that prevents the energization of machinery or equipment.

### *Tagout*

The placement of a tagout device on an energy isolation source in accordance with an established procedure, which indicates that the energy isolation source may not be operated until the tagout device is removed.

### *Tagout Device*

A prominent warning, such as a tag which can be securely attached to an energy isolation device in accordance with an established procedure to indicate that the energy isolating source and the equipment being controlled cannot be operated until the tagout device is removed.

# Lockout / Tagout

## Section 11.3

### General Requirements

1. This program shall be used in conjunction with the Confined Space Entry Program listed as Section 4.14 of this manual.
2. The Job Superintendent shall enforce the provisions of this program. Anyone removing a lock or tag other than his/her personal lock and/or attempting to defeat any lock or tag shall be terminated.
3. No employee shall remove another employee's lock.
4. Employee's are considered in violation of this program if they leave their key in the lock after the lock has been affixed to lockout / tagout device.
5. Lockout / Tagout devices shall be standardized on each project or production facility.
6. In the case of tagout devices such as danger tags, print and format shall be standardized. Lockout / Tagout devices shall contain the following.
  - a. The identity of the employee applying the device(s)
  - b. The date
  - c. Reason for the lockout / tagout
  - d. Warning instructions such as "Danger Do Not Operate" or "Danger, Do Not Start."
7. Lockout / Tagout devices shall be conspicuously identified, serve as the only device(s) used for controlling energy, and not be used for any other purpose.
8. Lockout / Tagout Devices shall be capable of withstanding the environment to which they are exposed.
9. Tagout devices shall be constructed and printed so that exposure to the elements will not cause the tag to deteriorate or become illegible.

### Energy Isolation Procedure

The following procedure shall be utilized prior to maintenance, service, or repair of any energized system:

1. At owner's facilities, the Superintendent or their designee shall discuss with the owner the overall identification and coordination of isolating the energy source or systems.
2. The Owner shall either lockout the system utilizing operations' personnel or provide the Company with a specific energy isolation procedure. If the Owner does not self-perform the lockout procedure, they shall provide an applicable operations' employee that will provide procedures, direction, and / or identification of the equipment or systems that will need to be isolated to safely perform the work. **The Company shall not isolate any owner's energized equipment without express consent from the owner to the Superintendent, unless an emergency situation warrants such action.**
3. Prior to the de-energization of machinery or equipment, the Authorized Employee shall know the type and magnitude of the energy, the hazards of the energy to be controlled, and the methods or means to control the energy. This individual shall locate all switches, breakers, valves, and other components required to be locked out to ensure the safe de-energization of the equipment or system prior to any employee commencing work activities.
4. All energy isolations requiring lockout / tagout to safely execute the work must be identified through either an Owner's written procedure or on the Company's lockout / tagout procedure, listed as *Appendix A* of this section.
5. The equipment or machinery shall be turned off or shut down using an established procedure for the system. An orderly shut down must occur to avoid any additional or increased hazard(s) to employees as a result of equipment de-energization.

# Lockout / Tagout

## Section 11.3

6. Energy isolation devices that are needed to control the energy to equipment or machinery shall be physically manipulated or otherwise operated to safely isolate the equipment or machinery from the energy source(s).
7. An Authorized Employee shall apply a lockout / tagout device and warning tag to the energy isolating source or system lockout mechanism. Lockout devices must be attached in such a manner as to hold the energy isolation source in "Off" or "Safe" position. Tagout devices must state the prohibition of removing the energy isolation device from the "Safe" or "Off" position.
8. After the application of the lockout / tagout devices to energy isolation sources, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.
9. Prior to starting work on machinery or equipment that has been locked and tagged out, the Authorized Employee shall verify that the isolation and de-energization of the machinery or equipment has been accomplished by.
  - a. Make sure that no personnel are exposed to the equipment.
  - b. Operate the energy sources (controls) to make sure equipment will not operate, then return them to the "off" position. Electrical testing equipment is to be used to verify electrical isolation.
  - c. The equipment is now locked out.
10. The Superintendent, or their designee, shall maintain a log of Authorized and Effected Employees for the purposes of Lockout / Tagout on the Lockout / Tagout Directory, listed as *Appendix B* of this section.

### Lockout Procedure Involving More Than One Person

1. If more than one person is required to lockout or tagout equipment or machinery, each shall affix his / her own personal lock or tagout device on the energy isolation device.
2. When an energy-isolation device cannot accept multiple locks or tags, a multiple lockout or tagout device, such as a multiple hasp, shall be used.
3. If lockout is used, a single lock may be used to lockout the machine, equipment, or system with the key(s) being placed in a lockout box or other device that allows the use of multiple locks to secure it. Each employee will then use his / her own lock to secure the box or cabinet. As each person completes their work, they shall remove their personal lock.

### Temporary Removal of Lockout / Tagout Devices

In the case where machinery or equipment must be tested, started, or re-positioned Lockout / Tagout devices may be temporarily removed and reinstalled once, utilizing the following procedure:

1. Clear the machine or equipment of all tools, equipment, cords, leads, and other materials.
2. Remove affected employees to a safe area.
3. Authorized employees remove Lockout / Tagout devices.
4. Perform one last visual check to verify all personnel and equipment have been removed from the immediate area where the testing will take place.
5. Energize and test the system.
6. De-energize or isolate the energy control source(s) and re-apply Lockout / Tagout devices.

# Lockout / Tagout

## Section 11.3

### Equipment Lockout / Tagout

In some circumstances, service, maintenance, or repair work on equipment or machinery that is under lockout / tagout may not get completed in a normal work shift. This equipment or machinery shall be effectively controlled with an equipment lock to prevent unwanted start-up or release of stored energy. Prior to affixing an equipment lock, the Supervisor shall notify the applicable Owner or Contractor that our Company intends on installing an equipment lock to control the energy source until our subsequent return.

### Release from Lockout / Tagout

When all work is completed and the equipment or machinery will be restored to operational condition, placed into new service, or turned over to an Owner, the following procedure shall govern such activity.

1. The work area surrounding the equipment shall be cleaned of all tools, equipment, cords, leads, and other materials.
2. Affected employees will be located in a safe area and notified that the Lockout / Tagout devices will be removed.
3. Authorized employees shall reinstall guards or other safety devices that were removed as applicable.
4. Authorized Employees shall remove Lockout / Tagout devices.
5. The machinery or equipment will be restored to operational condition or turned over to the Owner.

In the case of Owner's equipment or machinery, the Job Superintendent shall coordinate all turnover, testing, and start-up activities with the appropriate Owner representative.

### Special Exception to Lockout / Tagout Device Removal

All Authorized Employees are responsible for the application and removal of Lockout / Tagout devices. However, if the Authorized

Employee is not available to remove the Lockout / Tagout device, it may be removed by another Authorized Employee **ONLY AFTER** meeting specific safeguards that afford protection to the employee(s).

The Authorized Employee who initiated the installation of the Lockout / Tagout device must be contacted by telephone or other similar means that effectively demonstrates the Authorized Employee is not working on the equipment and is off-site or otherwise removed from the work area before an Authorized Employee can remove the Lockout / Tagout Device. This contact must be documented by the individual who has such communication with the Authorized Employee and recorded at the project or production facility of occurrence.

### Multi-Employer Work Sites

#### Contractors

When contractors perform work within a company facility and subcontract work to the Company, an Authorized Company Employee (on-site) and an Authorized Contractor Employee shall review with each other their respective Lockout / Tagout requirements and / or procedures that shall be followed to safely execute the work. The on-site employee may be required to follow the provisions of the contractor's lockout / tagout program. Conversely, contractors may be required to adopt and comply with an Owner's lockout / tagout program and requirements. Employees shall receive training if either the contractor or owner's requirements exceed the elements of this program.

#### Groups

When a group of employees work on the same equipment or machinery requiring lockout / tagout, an Authorized Employee shall be responsible for the collective safety of the group. The group shall be protected at the same level as an individual employee. A group lockout isolation device shall be utilized and each Authorized Employee will apply and remove their personal lockout device according to the established procedure.

# Lockout / Tagout

## Section 11.3

### *Shift Changes*

The Job Superintendent, or their designee, shall assure that a communication tool is in place during shift changes that effectively informs employees coming on the shift of all lockout / tagout procedures that are in effect. This individual shall verify that continuity of the lockout / tagout procedures remains in place from shift to shift and communicated to employees.

### **Inspections**

At least annually, OSHA requires an employer to inspect or review energy control procedures as they are practiced by an "Authorized Employee" to determine that the procedures are followed and remain adequate for the hazards presented.

These inspections shall include:

1. Correction of any deviations or inadequacies.
2. An Inspector review with each Authorized and Affected Employee, their respective responsibilities with the Lockout / Tagout Program.
3. The Inspector shall certify this inspection occurred on the Employee Performance Observation Report, listed as *Appendix C* of this section.

### **Training**

All applicable employees will receive training on this lockout / tagout or other similar program as follows.

### *Authorized Employees*

Shall receive training from an owner, contractor, or qualified Company representative in the recognition of:

1. Applicable hazardous energy sources
2. Type and magnitude of the energy available in the workplace.

3. Methods and means that will be implemented for energy isolation and control.
4. Requirements for restoring or restarting machinery, equipment, or piping systems.

### *Affected Employees*

Shall receive instruction from an Authorized Employee on the following:

1. Purpose and use of the energy control procedure.
2. Application and removal of lockout / tagout devices.

Retraining shall take place for Authorized and Affected Employees whenever there is a change in job assignment, a change in equipment or machinery configuration, a process presents a new hazard or a change in procedures, or when a direct observation demonstrates that an employee does not clearly understand their role or responsibility. Retraining shall also be given whenever an annual inspection identifies a deficiency or necessary change in procedures. All applicable training shall take place at the time of initial hire and annually thereafter.

### **Appendices**

Appendix A – Lockout / Tagout Procedure

Appendix B – Lockout / Tagout Directory

Appendix C – Employee Performance Observation Report

**Appendix A  
Lockout / Tagout Procedure**

DATE	Machinery/Equipment	Isolation Device(s)	Locations	Comments	Locked/Isolated By:
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

PAGE \_\_\_\_ OF \_\_\_\_

**Appendix B  
Lockout / Tagout Directory**

Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Affected Employees**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Authorized Employees/Positions**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

**Appendix C**  
**Employee Performance Observation Report**

Date: \_\_\_/\_\_\_/\_\_\_

Time: \_\_\_\_\_ AM/PM  
(Circle)

Specific operation or description of job:

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Full compliance and performance of proper Lockout / Tagout procedures as outlined in the facility written Lockout / Tagout procedures.

Describe any violations observed. \_\_\_\_\_

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Action Taken:    Retraining                   Reprimand

If other than indicated above, please describe. \_\_\_\_\_

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\_\_\_\_\_  
(Signature of Supervisor)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

*This form is to assist in compliance with record keeping requirements of 29 CFR 1910.147(c)(6) Lockout / Tagout.*

# Energized Electrical Work and NFPA 70E

## Section 11.4

### Purpose

Safety-related work practices shall be employed to prevent electrical shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazard.

### References

OSHA 1926.400, 1910.303, 1910.331, and NFPA 70E

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors in the implementation of this policy for program effectiveness and employee protection. They shall periodically audit job-sites and / or production environments to assure that all applicable aspects of the program are followed.

#### *Employee*

Shall be responsible for comprehension of this policy and will be held accountable for executing their work tasks with adherence to all applicable requirements.

### General Requirements

Live parts to which an employee may be exposed shall be de-energized before the employee works on or near them, unless API Group Inc. and / or its affiliate(s) can demonstrate that de-energizing introduces additional or increased hazards or is unfeasible due to equipment design or operational limitations. Live parts that operate at less than

50 volts to ground, need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electrical arcs. If at any time our employees shall work on live parts, *Appendix C* of this section shall be sign by our customer and the other appropriate parties. If a signature will be be grated, we shall document why the document was not signed. Examples of increased or additional hazards include, but are not limited to:

1. Interruption of life support equipment.
2. De-activation of emergency alarm systems.
3. Shutdown of hazardous ventilation equipment.
4. Removal of illumination for an area.

If the exposed live parts are not de-energized, other safety-related work practices shall be used to protect employees who may be exposed to the electrical hazards involved. Such work practices shall protect employees against direct or indirect contact with any part of the body or through some other conductive object with the energized circuit parts. The work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electrical conductors or circuit parts.

Only qualified workers shall work on or near exposed electrical equipment, circuits, and / or lines.

### Qualified Person(s)

An employee who can safety work on an energized circuit and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

### Unqualified Person(s)

An employee who has little or no training in exposed electrical components. This may include new functions that a previously qualified electrician may be unfamiliar with.

# Energized Electrical Work and NFPA 70E

## Section 11.4

### Procedures

#### *De-energizing Equipment*

1. Safe procedures for de-energizing circuits and equipment shall be determined before circuits and equipment are de-energized by the qualified person.
2. The circuits and equipment to be worked on shall be disconnected from all electrical 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 electrical equipment may not be used as a substitute for lockout and tagout procedures, which can be found in *Section 11.3* of this manual.
3. Stored electrical energy which may endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short circuited and grounded if the stored electrical energy may endanger personnel.
4. Stored non-electrical energy and devices that could re-energize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device,
5. A lock and tag shall be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed. The lock shall be attached so as to prevent persons from operating the disconnected means unless they resort to undue force or the use of tools. Lockout / tagout procedures shall be followed from the lockout / tagout program which is found in *Section 11.3* of this manual.

#### *Energized Electrical Work*

1. Only after determining and demonstrating that de-energizing an electrical circuit or piece of equipment introduces additional or increased hazards or the circuit or equipment is unfeasible due to equipment design or operational limitations shall be worked energized.
2. Employees working on live parts that operate at more than 50 volts to ground shall follow specific safety-related work practices to protect themselves from electrical hazards.
3. Only qualified persons may work on electrical circuits or equipment that has not been de-energized. Qualified persons shall be capable of working safely on energized circuits using the following:
  - a. Special precautionary techniques
  - b. Designated personal protective equipment
  - c. Insulating and shielding materials
  - d. Insulated tools
4. Personal protective equipment will be available for all electricians working on energized equipment and circuits. Proper PPE is listed in *Appendix A and B of this section*.
5. Any jobsite Superintendent / Foreman needing high voltage tool kits shall contact the Safety Manager.
6. Insulating tool kit containing the following items:
  - a. 9 inch side cutting pliers
  - b. 6 inch cabinet tip screwdriver
  - c. 4 inch heavy duty screwdriver
  - d. #2 Phillips screwdriver
  - e. Wire stripper-cutter
  - f. Utility knife
  - g. Slotted holding screwdriver
  - h. Phillips holding screwdriver

# Energized Electrical Work and NFPA 70E

## Section 11.4

- i. Tool pouch
  - j. Insulated tape measure
  - k. Mini voltage tester
  - l. 7.5 kV PVC insulating roll
7. Employees shall use electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work performed. Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested.
  8. Any person needing a higher voltage insulating glove shall contact the Safety Manager.
  9. When working near exposed energized conductors or circuit parts, employees shall use insulating equipment and materials to prevent electric shock, arc, or flash.
  10. Employees shall insulate themselves from ground to prevent electric shock. Employees shall use insulating tools or handling equipment if they may make contact with such conductors or parts.
  11. Visually inspect conductors, bushings, and other electrical items for defects to prevent electrical shock.
  12. Where the work required exposure to, or handling of, energized conductors or switchgear of 440 volts or more between phases, two or more qualified employees shall work together.
  13. Portable ladders used shall have non-conductive siderails.
  14. Conductive articles of jewelry and clothing, such as watchbands, bracelets, rings, key chains, necklaces, aprons, cloth with conductive thread, or metal headgear, may not be worn if they have the potential to contact exposed energized parts.
  15. Where live parts present and electrical contact hazard, employees may not

perform housekeeping duties at such close distances to the parts where there is the possibility of contact, unless adequate safeguards are provided and set in place.

16. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near or enter spaces exposed to energized parts. Employees may not reach blindly into areas which may contain energized parts.

### *Overhead Lines*

Please refer to *Section 11.1* to review the overhead lines program.

### **NFPA 70E**

In 2004, the NEC published its 7<sup>th</sup> edition of the NFPA 70E, Standard for Electrical Safety in the Workplace. The main goal of this standard is to provide electricians with protection from the following:

1. Electric shock
2. Arc flash burns
3. Arc blast injuries
4. Other hazards

The four (4) main areas of the standard are:

1. Safety-related work practices
2. Safety-related maintenance requirements
3. Safety requirements for special equipment
4. Installation safety requirements

Our Company policy is to work on live parts as the last alternative work practice. The main objective of an electrically safe work condition is to reduce the risks by removing the energy source. If this cannot be accomplished, then

# Energized Electrical Work and NFPA 70E

## Section 11.4

the electrician shall take steps to protect themselves from electrical injury. The electrician shall make every effort possible to establish an electrically safe work condition by the following:

1. Determining the hazard involved
2. Establish boundaries
3. Select proper PPE as listed in *Appendix A and B of this section.*

*Please refer to NFPA 70E for applicable standards and tables on establishing electrically safe working conditions.*

Steps taken to create an electrically safe working condition are as follows:

1. Check drawings and identify all possible sources.
2. Interrupt load current and open disconnects.
3. Visually verify opening of contacts where possible.
4. Apply lockout / tagout devices according to our policy in *Section 11.3.*
5. Test voltage and verify operation of tester.
6. Apply ground clusters where necessary.

### *Shutdown Procedures*

All Supervisors / Foreman shall create and conduct a pre-job plan on all shutdown situations. The easiest way to accomplish this is to put together a checklist listing all the activities you will be doing during the shutdown from start to finish. This is done for the following reasons:

1. OSHA requires pre-job training for working on or around energized electrical equipment and lockout / tagout situations.

2. Allows the entire crew, and the customer, to know the details of the shutdown, and it assists everyone in knowing where they are during the shutdown process and eliminates any confusion and miscommunication.
3. Shutdowns commonly run into the nights, weekends, and lengthy work shifts (8-12 hours) when employees begin to become tired and loose concentration.
4. Crews have been assembled for the shutdown and may not be familiar with the specific construction site, customers' facility and / or their electrical equipment.

Coordination and communication is the key to eliminating mistakes and avoiding accidents.

### **Training**

Both qualified and unqualified employees shall receive training on all relevant aspects of this policy upon new hire as applicable or as site or operating conditions warrant. Training shall occur periodically thereafter.

### **Appendices**

Appendix A – Categories of PPE as described in NFPA 70E

Appendix B – Personal Protective Equipment Matrix

Appendix C – Energized Electrical Work Permit

**Appendix A**  
**Personal Protective Equipment**  
Categories of PPE as described in NFPA 70E

<b>Category</b>	<b>Cal/cm<sup>2</sup></b>	<b>Clothing</b>
0	1.2	Untreated Cotton
1	5	Flame retardant (FR) shirt and FR pants
2	8	Cotton underwear, FR shirt, and FR pants
3	25	Cotton underwear, FR shirt, FR pants, and FR coveralls
4	40	Cotton underwear, FR shirt, FR pants, and double layer switching coat and pants

Cal/cm<sup>2</sup> are the units of incident energy that the PPE can withstand. Note that a hard hat with full faceshield and the appropriate gloves are required also.

**Appendix B  
Personal Protective Equipment Matrix**

Protective Clothing and Equipment Hazard/Risk Category Number	Protective Systems for Hazard/Risk Category					
	-1 <sup>(3)</sup>	0	1	2	3	4
<b>Non-Melting (according to ASTM F 1506-00) or Untreated Natural Fiber</b>						
a. T-shirt (short-sleeve)	X			X	X	X
b. Shirt (long-sleeve)		X				
c. Paints (long)	X	X	X <sup>(4)</sup>	X <sup>(6)</sup>	X	X
<b>FR Clothing</b>						
a. Long-sleeve shirt			X	X	X <sup>(9)</sup>	X
b. Pants			X <sup>(4)</sup>	X <sup>(6)</sup>	X <sup>(9)</sup>	X
c. Coverall			<sup>(5)</sup>	<sup>(7)</sup>	X <sup>(9)</sup>	<sup>(5)</sup>
d. Jacket, parka, or rainwear			AN	AN	AN	AN
<b>FR Protective Equipment</b>						
a. Flash suit jacket (multilayer)						X
b. Flash suit pants (multilayer)						X
c. Head Protection						
1. Hard Hat			X	X	X	X
2. FR hard hat liner					AR	AR
d. Eye protection						
1. Safety glasses	X	X	X	AL	AL	AL
2. Safety goggles				AL	AL	AL
e. Face and head area protection						
1. Arc-rated face shield, or flash suit hood				X <sup>(8)</sup>		
2. Flash suit hood					X	X
3. Hearing protection (ear canal inserts)				X <sup>(8)</sup>	X	X
f. Hand protection						
1. Leather gloves			AN	X	X	X
g. Foot protection						
1. Leather work shoes			AN	X	X	X
<b>PPE Arc Flash Gear Required</b>	<b>N/R</b>	<b>N/R</b>	<b>4cal</b>	<b>8cal</b>	<b>25cal</b>	<b>40cal</b>

**Hazard categories up to 2 OPP will require 11 calorie protection.**

**Hazard categories over 2 OPP will require 40 calorie protection.**

AN = As needed      AR = As required      AL = Select one in group      X = Minimum required

**Notes:**

- (1) See Table 130.7 (C) (11). Arc rating for a garment is expressed in cal/cm<sup>2</sup>.
- (2) If voltage-rated gloves are required, the leather protectors worn external to the rubber gloves satisfy this requirement.
- (3) Hazard/Risk Category Number "-1" is only defined if determined by Notes 3 or 6 of table 130.7 (C)(9)(a).
- (4) Regular weight (minimum 12 oz/yd<sup>2</sup> fabric weight), untreated, denim cotton blue jeans are acceptable in lieu of FR pants. The FR pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 11 cal.
- (5) Alternate is to use FR coveralls (minimum arc rating of 11 cal) instead of FR shirts and FR pants.
- (6) If the FR pants have a minimum arc rating of 11 cal, long pants of non-melting or untreated fiber are not required beneath the FR pants.
- (7) Alternate is to use FR coveralls (minimum arc rating of 11 cal) over non-melting or untreated natural fiber pants and T-shirt.
- (8) A face shield with a minimum arc rating of 11 cal, with wrap-around guarding to protect not only the face, but also the forehead, ears, and neck (or alternatively, a flash suit hood), is required.
- (9) Alternate is to use two sets of FR coveralls (the inner with a minimum arc rating of 4 cal and outer coverall with a minimum arc rating of 5) over non-melting or untreated natural fiber clothing, instead of FR coveralls over FR shirt and FR pants over non-melting or untreated natural fiber clothing.

**Appendix C**  
**Energized Electrical Work Permit**

**PART I: TO BE COMPLETED BY THE REQUESTER:**

Job/Work Order Number \_\_\_\_\_

- (1) Description of circuit/equipment/job location: \_\_\_\_\_  
\_\_\_\_\_
- (2) Description of work to be done: \_\_\_\_\_  
\_\_\_\_\_
- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
*Requester/Title*

\_\_\_\_\_  
*Date*

**PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:**

*Completed*

- (1) Detailed job description to be used in performing the above detailed work: \_\_\_\_\_   
\_\_\_\_\_
- (2) Description of the Safe Work Practices to be employed: \_\_\_\_\_   
\_\_\_\_\_
- (3) Results of the Shock Hazard Analysis: \_\_\_\_\_   
\_\_\_\_\_
- (4) Determination of Shock Protection Boundaries: \_\_\_\_\_   
\_\_\_\_\_
- (5) Results of the Flash Hazard Analysis: \_\_\_\_\_   
\_\_\_\_\_
- (6) Determination of the Flash Protection Boundary: \_\_\_\_\_   
\_\_\_\_\_
- (7) Necessary personal protective equipment to safely perform the assigned task: \_\_\_   
\_\_\_\_\_
- (8) Means employed to restrict the access of unqualified persons from the work area:   
\_\_\_\_\_
- (9) Evidence of completion of a Job Briefing including discussion of any job-related hazards: \_\_\_\_\_   
\_\_\_\_\_
- (10) Do you agree the above described work can be done safely?  Yes  No (if no, return to requester)

\_\_\_\_\_  
*Electrically Qualified Person(s)*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Electrically Qualified Person(s)*

\_\_\_\_\_  
*Date*

**PART III: APPROVAL(S) TO PERFORM WORK WHILE ELECTRICALLY ENERGIZED:**

\_\_\_\_\_  
*Manufacturing Manager*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Safety Manager*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*General Manager*

\_\_\_\_\_  
*Date*

Note: Once the work is complete, forward this form to the site Safety Department for review and retention.

**Energized Electrical Work**

1

**Dated: 1/1/08**

# Scaffolding

## Section 12.1

### Purpose

The Company has developed the following Scaffold Program to act as a guideline for the safe construction and use of scaffolding at all jobsite and fixed facilities.

### References

**29 CFR 1926.450; 29 CFR 1926.451;  
29 CFR 1926.452; 29 CFR 1926.454**

### Responsibilities

#### *Managers / Supervisors*

Are responsible for the implementation of these procedures to ensure the continued safe use of scaffolding and successful protection of employees from known or potential hazards. The manager must identify a competent person for each scaffold job. The competent person shall be responsible for supporting the manager in complying with this policy by:

1. Identifying Hazards associated with the construction and use of scaffolds.
2. Ensuring that all scaffolds are erected by properly trained crews under the supervision of a competent person.
3. Enforcing the requirements of the procedures.
4. Training employees in the safe use of scaffold.
5. Ensuring scaffolds are properly tagged.
6. Ensuring that scaffolds are inspected for safe use.
7. Ensuring that the use of scaffolding is for parties / contractors for which it was built.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing training, resources, and technical assistance in support of this program. In addition, they shall also periodically audit

projects and production facilities to assure these rules have been implemented and enforced.

#### *Employee*

Must learn and follow these procedures. They shall not perform procedures or tasks in which they have not revised proper training and instruction on applicable safe work practices. Employees shall report identified hazards to their supervisor immediately.

#### *Competent Person*

Is one who is capable of identifying existing and predictable hazards in the surroundings or work environments that are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

#### *Qualified Person*

One who by possession of a recognized degree certificate, or other 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.

1. Job site(s) and fixed facilities must be inspected to determine ground conditions, strength of supporting structure, proximity of electric power lines, overhead obstructions, wind conditions, and the need for overhead or weather protection. These conditions must be evaluated and adequately addressed.
2. Total loads to be imposed on the scaffold and the weight of the scaffold have to be calculated by a qualified person.
3. Stationary scaffolds over 125 feet in height must be designed by a professional engineer.

# Scaffolding

## Section 12.1

4. All equipment must be inspected to see that it is in good condition and is serviceable. Damaged equipment must be tagged and removed from service.
5. Scaffold plank must be inspected to see that it is graded as scaffold plank, is sound and in good condition and is free from saw cuts, cracks, notches, splits, delaminations, and holes. Wooden scaffold planks shall be inspected before use.
6. The scaffold assembly must be designed to comply with local, State, and Federal requirements by a qualified person.

### Erection of Fixed Scaffold

Scaffolds must be erected, moved, or disassembled only under the supervision of competent persons.

1. Base plates must be centered on the sills, and be in firm contact with both sills and frame legs. Any part of a building or structure used to support the scaffolding must be capable of supporting the load to be applied.
2. Base plates shall be used on all fixed scaffolds. They must be 5 inches square, must be centered on the sills, and be in firm contact with both sills and frame legs.
3. Compensate for uneven ground by using screw jacks and base plates, and sills if required by ground conditions. DO NOT USE unstable objects such as blocks, loose bricks, and similar objects or materials. When screw jacks are used they shall extend into the scaffold leg a minimum of 6 inches and be used as low as possible. Swivel type screw jacks shall be used on incline surfaces.
4. Plumb and level scaffolding. Be sure scaffold stays plumb and level as erection progresses.
5. Ties, guys, bracing, and / or outriggers may be needed to assure a safe stable scaffold assembly. The height of the scaffold in relation to the minimum base width, wind loads, the use of brackets or cantilevered platforms, and imposed scaffold loads determines the need for sway and stability bracing. The following general guidelines apply:
  - a. A scaffold must always be secured when the height of the scaffold exceeds four times the minimum base width.
  - b. Ties must be placed as near as possible to horizontal members. The bottom tie must be placed no higher than four times the minimum scaffold base width. Subsequent vertical tie placement will depend on the scaffold width. Scaffolds three feet and narrower must be tied at vertical intervals no more than 20 feet apart. Scaffolds wider than three feet must be tied at vertical intervals no more than 26 feet apart. The uppermost tie should be placed as close to the top as possible and, in no case more than four times the minimum base width from the top.
  - c. Vertical ties must be placed at the ends of the scaffold runs and at no more than 30 feet horizontal intervals in between.
  - d. Ties must be installed as the erection progresses and not be removed until the scaffold is dismantled to that height.
  - e. Side brackets, cantilevered platforms, pulleys, hoist arms, enclosed scaffolds, sloped surfaces, and windy conditions introduce overturning and uplift forces which must be considered and compensated for. These situations require additional bracing, tying, or guying.

# Scaffolding

## Section 12.1

- f. Circular scaffolds erected completely around or within a structure may be restrained from tipping by use of “stand off” bracing members.
  - g. A free standing tower must be guyed at the intervals outlined above or otherwise restrained to prevent tipping or overturning.
6. Outrigger frames or outrigger units can be used to increase the minimum base width. If used they must be installed on both sides of the tower.
7. Work platforms must be fully decked with platform units in good, sound condition. Platform units may be individual scaffold grade wood planks, fabricated plank, fabricated scaffold decks, or fabricated scaffold platforms.
- a. Scaffold platforms and walkways must be at least 18 inches wide.
  - b. Each end of each plank must overlap its support by a minimum of 6 inches, but no more than 12”, or be cleated.
  - c. Each end of each platform 10 feet long or less must overhang its supports by no more than 12 inches. Each end of each platform longer than 10 feet must overhang its supports by not more than 18 inches. Larger overhangs must be guarded to prevent access to the overhang.
  - d. Each plank on a continuous run scaffold must extend over its supports by at least 6 inches and overlap each other by at least 12 inches.
  - e. Spans of 2 by 10 inch nominal scaffold grade plank must never exceed 10 feet. Loads must be evenly distributed and not exceed the allowable loads for type of plank being used.
- f. Secure platform units to scaffolding to prevent uplift caused by high winds or other job-site conditions.
8. Guardrails must be used on all open sides and ends of scaffold platforms when the platform height is more than 6 feet above a lower level. An open side is if the measurement from the edge of your scaffold to the surface of your work is greater than 14 inches.
- a. Guardrails shall have a top edge member at 42 inches (plus or minus 3 inches) above a walking working surface.
  - b. Midrails shall be installed at a height midway between the top edge of the guardrail system and the walking working level (approximately 21 inches).
  - c. Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 lbs. applied within 2 inches of the top edge of the rail in any outward or downward direction.
  - d. Guardrail systems shall be surfaced to prevent injuries from punctures, lacerations, or snagging of clothing. The ends of top and midrails are not to overhang past the terminal post except when by doing so does not constitute a projection hazard.
  - e. Steel or plastic banding, manila, or synthetic rope shall not be used as top or midrail construction materials.
9. Toeboards must be installed whenever people are required to work or pass under a scaffold platform. When materials are to be stacked higher than the toeboard, screening is required from the toeboard or platform to the top guardrail. When screen is used it shall be #18 U.S. standard wire one-half mesh or equivalent.

# Scaffolding

## Section 12.1

10. Access must be provided to all work platforms. If access is not available from the structure, access ladder units or stairway must be provided. When access ladder units are provided, a rest platform must be installed at vertical intervals of 35 feet or less. Attachable ladder units must extend at least 3 feet above the work platforms.
11. Use fabricated decks or cleated plank to minimize platform interference in access areas.
12. Do not store materials on side or end bracket platforms.
13. Cantilevered platforms must be specifically designed for that purpose. The frames pinned to prevent uplift and adequate ties provided to prevent overturning.
14. Materials must never be placed on cantilevered platforms unless the assembly has been designed to support material loads by a qualified person. These types of platforms cause overturning and uplift forces which must be compensated for.
15. After erecting scaffold, be sure screw jacks are in firm contact with frame legs.
16. Special care must be taken when putlogs are used:
  - a. Putlogs must only be mounted using putlog hangers, with all bolts and nuts installed and tightened.
  - b. Putlogs must overhang their supports by at least 6 inches.
  - c. Lateral bracing and kneebracing are both required for putlog spans greater than 10 feet.
  - d. Putlogs used as side or end brackets require special mountings and special bracing.
17. DO NOT install platforms between free standing towers.
18. Material hoists and derricks should not be mounted on a scaffold unless the scaffold is specifically designed for that purpose.
19. CHECK THE ENTIRE SCAFFOLD ASSEMBLY BEFORE USE. Thoroughly inspect the completed assembly to see that it complies with all safety codes, all fasteners are in place and tightened, it is level and plumb, work platforms are fully decked, guardrails are in place, and safe access is provided.
20. Personal fall protection shall be worn and utilized during scaffold construction whenever feasible.
21. Remove all loose and unused scaffold components during the course of construction.
22. An adequate area around and below the scaffold construction area shall be delineated with RED (DANGER) barricade tape and hazard warning signs to control access when in high pedestrian and vehicular traffic areas.
23. Complete scaffold erection shall be inspected and appropriately tagged.

### Erection of Rolling Scaffolds

The following additional precautions apply to the erection of rolling towers:

1. Height of the rolling tower must not exceed four (4) times its minimum base width, or 40 feet, whichever is lower.
2. Secure all casters to frame legs or screw jacks with the manufacturer's locking pins, nut and a bolt, or other secure means.
3. Screw jacks must not increase the height of the scaffold by more than 12 inches. Towers must be kept level and plumb at all times.

# Scaffolding

## Section 12.1

4. Horizontal diagonal bracing must be used at the bottom and top of rolling towers where the top work platform is more than 9 feet above the surface. When rolling towers are to be erected higher than 9 feet, the first brace must be no more than 2 feet above the casters, and the others at no greater than 21 foot intervals above. Fabricated planks with hooks may be used as diagonal braces.
  5. All frames must be fully cross-braced.
  6. Platform units with hooks, or cleated planks, must be used on rolling towers.
  7. When a stairway is installed for access, it shall be installed so that access is through the scaffold platform with a trap door for entry onto the deck.
- c. Climb safely!
    - i. Face the rungs as you climb up or down.
    - ii. Maintain three points of contact at all times.
    - iii. Do not try to carry materials while you climb.
    - iv. Be sure of your footing and balance before you let go with your hands. Keep on hand firmly on frame or ladder at all times.
    - v. Clean shoes and rungs to avoid slipping.

### Use of Scaffolds

1. All Scaffolds
    - a. Before you use the scaffold, a competent person must inspect the scaffold assembly to be sure it has not been altered, is assembled correctly, is level and plumb, all base plates are in firm contact with sills, all bracing is in place and securely tightened, all platforms are fully decked, all guardrails are in place, safe access is provided, it is properly tied and / or guyed, there are no overhead obstructions, there are no energized electric power lines within 12 feet of the scaffold assembly, and correct any deficiencies prior to use.
    - b. Use only proper access. Do not climb cross braces. Do not climb any scaffold component unless it is specifically designed for that purpose. Do not stand on platform overhangs.
- d. DO NOT work on slippery platforms.
  - e. DO NOT overload platforms with materials. Special care must be taken when putlogs are used.
  - f. DO NOT store materials on platforms supported by putlogs. They are designed for personnel ONLY.
  - g. DO NOT extend working heights by standing on planked guardrails boxes, ladders or other materials on scaffold platforms.
  - h. DO NOT loosen, detach or remove any component of a scaffold assembly except under the supervision of a competent person. Components that have been removed must be replaced immediately.
  - i. DO NOT erect scaffolding on wagons, trucks, or other wheeled vehicles.
  - j. Stand only within the platform area; do not try to extend work area by leaning out over guard railing.

# Scaffolding

## Section 12.1

### 2. Proper Tagging of Scaffolds

- a. A tagging system, equivalent to that shown in *Appendix A*, entitled *Scaffold Tags*, will be used to communicate to the scaffold user the condition of the scaffolding. (IF A SCAFFOLD DOES NOT HAVE A TAG IT IS ASSUMED RED TAGGED) The completed tag should be attached to the scaffold at each point of access.
  - i. Red Tag – Designates that the scaffold is not safe for use and only the scaffold erectors are allowed on the scaffolding.
  - ii. Yellow Tag – Designates that the scaffold is not in full compliance with OSHA standards and that personal fall protection equipment is required when working from the scaffolding.
  - iii. Green Tag - Designates that the scaffold meets all OSHA regulations and personal fall protection is not needed.

### 3. Use of Rolling Towers

All of the above precautions plus:

- a. DO NOT RIDE MANUALLY PROPELLED ROLLING SCAFFOLD.
- b. Lock all casters before getting on a rolling tower. Casters must be locked at all times the scaffold is not being moved.
- c. DO NOT bridge between rolling towers.
- d. Remove all materials from scaffolding before moving a rolling tower.
- e. Be sure floor surface is clear of obstructions or holes before moving scaffold.

- f. Be sure there are not overhead obstructions or energized electric power lines in the path when moving a rolling tower, or in the path of an overhead crane.
- g. Rolling towers must only be used on level surfaces.
- h. Move rolling towers from the base level only. DO NOT PULL OR PUSH from the top.

### Suspended Scaffolds

1. Design erection, installation and dismantling of any suspended scaffolding shall be completed by qualified personnel as defined by company requirements.
2. No employee shall work on a suspended scaffold without proper training by a qualified person.

### Dismantling Scaffolds

The following additional precautions apply when dismantling scaffolding:

1. PRIOR TO REMOVAL OR LOOSENING of any component, consider the effect the removal of the component, or the loosening of a joint, will have on the strength of the remaining assembly.
2. Check to see if scaffolding has been altered in any way which would make it unsafe. If so, reconstruct where necessary before beginning the dismantling process.
3. Use only proper access. Do not climb cross braces or vertical members. Do not climb scaffold components unless they are specifically designed for that purpose.
4. Do not remove ties until scaffold above has been removed.

# Scaffolding

## Section 12.1

5. Visually inspect each plant to be sure it is supported on both ends and is safe to stand or work on.
6. Do not accumulate removed components or equipment on the scaffold.
7. Lower components in a safe manner as soon as dismantled. Do not throw components off scaffold.
8. Stockpile dismantled equipment in an orderly manner.
9. Remove scaffold components immediately after detaching from scaffold.

Understanding and following these guidelines will increase your personal safety and the safety of fellow workers.

### Training

All employees required to access scaffolding to perform work activities shall receive initial hazard awareness training. Retraining shall be conducted as conditions change or whenever an employee demonstrates a lack of knowledge regarding safe work practices.

### Appendices

Appendix A – Scaffold Tags







# Aerial Lifts

## Section 12.2

### Purpose

The following policy has been developed to ensure the safe operation of aerial lift equipment. For the purposes of this policy aerial lifts can be considered one of the following pieces of equipment: push around, scissorlifts, telescoping boom lifts, articulating boom lifts, or truck mounted boom lifts.

### References

OSHA 1926.556 and ANSI A92

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing appropriate training, technical assistance, and other applicable resource materials. They shall also periodically audit job-sites and production areas for program compliance and notify appropriate personnel of their findings including recommendations for corrective action as applicable.

#### *Employees*

Shall comprehend the rules and requirements of this policy and safe aerial lift operation and be held accountable for their workplace actions.

### General Requirements

1. Only qualified or authorized personnel shall operate an aerial lift.
2. All aerial lift operational controls must be tested each day/shift prior to use, including but not limited to the emergency lowering system.

3. Employees must perform an inspection of the equipment prior to use.
4. Employees must stand firmly on the floor of the aerial work platform and never utilize a ladder, planks, steps, or other materials to achieve a greater working height.
5. Boom and basket load limits, as specified by the manufacturer shall not be exceeded.
6. Alterations or modifications to aerial lifts shall not be performed unless explicit, written consent has been attained by the equipment manufacturer.
7. When using outriggers (if equipped), they must be positioned on pads or a solid surface with the brakes set. Before moving, the outriggers must be stowed.
8. Aerial platforms must be set on a firm base within three degrees of level, unless design specifications from the manufacturer indicate otherwise.
9. Articulating boom and extensible boom lifts, primarily designed as personnel carriers shall have both upper and lower control devices. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls and their function shall be plainly marked and readily identifiable. Lower level controls shall not be operated unless permission from the operator of the lift, except in the case of emergency.
10. Fall protection is worn and utilized prior to operating boom lifts.
11. Aerial lifts are designed for elevating personnel, materials, and tools within the confines of the platform and within the load capacities set by the manufacturer. This equipment shall not be used as a material hoist, or outfitted with rigging to be used as a crane.

# Aerial Lifts

## Section 12.2

### Inspection / Maintenance

Prior to use each day and/or shift, the aerial lift platform must be given a visual and functional test. The inspection shall include a check of the following, but not limited to:

1. Operating manual is stored in a weather resistant storage compartment on the lift.
2. Test of operational and emergency controls.
3. Inspection of safety and personal protective devices.
4. Air, hydraulic, or fuel system leaks.
5. Cable and wiring harnesses.
6. Loose or missing parts.
7. Condition of tires and wheels.
8. Warning and operational control signage is legible.
9. Guardrail system is not damaged.

In addition to inspecting the equipment, the employee shall also inspect the area in which the lift will be operated for hazards that can compromise the safe operation of the lift, such as:

1. Drop-offs, holes, or depressions in the work surface.
2. Bumps and floor obstructions.
3. Debris or accumulated materials on the floor.
4. Overhead obstructions.
5. Hazardous locations.
6. Operating in the line of fire of other operating equipment such as overhead cranes.
7. Surfaces which will not support the load imposed by the lift.

8. Weather conditions.

Visual and functional aerial lift inspections shall be completed on the Aerial Lift platform Inspection, listed as *Appendix A* of this section. The inspection must be completed daily by a qualified or authorized person for each aerial lift that will be in operation. Once the report is completed in its entirety, the document shall be forwarded to the Job-Site Supervisor for inclusion in the applicable project file. Copies shall be made available to applicable maintenance personnel.

Qualified or authorized persons must immediately report any problem, defect, or malfunction that is evident during an inspection or operation. If an aerial lift experiences a problem that requires taking it out of service, it shall be tagged "Do Not Use" and the Job-Site Supervisor shall remove the keys and prohibit its use until the equipment can be serviced and restored to safe operation.

### Aerial Lift Operation

Prior to moving, repositioning, or elevating the aerial lift platform, the operator must ensure the following:

1. The operators manual is located on the lift, and the manual must be read by anyone who is going to operate the lift prior to use.
2. The outriggers, stabilizers, or other stability enhancing means (if so equipped) are properly used.
3. All swing gates or chain gates on the aerial lift platform are in the closed position.
4. A full body harness is worn by the operator and secured to the manufacturer's anchorage point.
5. The load, which includes personnel, materials, and tools do not exceed the manufacturer's rated capacity.
6. There is adequate clearance from overhead obstructions (cranes, piping, sprinklers, electrical, etc.).

# Aerial Lifts

## Section 12.2

7. The minimum safe approach distances to energized power lines are maintained in accordance to the table provided in Section 11 of this manual, entitled Electrical Safety.
8. Assure that welding leads, extension cords, hoses, or ropes will not get entangled and cause the aerial lift to tip upon elevating the lift.

Prior to lowering the platform, the operator must ensure the area adjacent to the lift is clear of personnel and equipment. Precautions shall be taken to prevent welding leads, extension cords, hoses, and ropes from becoming entangled. If the platform or assembly becomes caught, bound, or snagged preventing its movement, all personnel adjacent to the equipment shall be removed from the area before attempting to lower the platform utilizing the lower controls.

The aerial platform must not be driven on grades, slopes, or ramps that exceed the manufacturer's specifications. When an aerial lift is designed for elevated driving, the operator must observe the following:

1. Maintain a clear path of travel.
2. Maintain a safe distance from obstacles, debris, drop offs, holes, depressions, ramps, or other hazards.
3. Maintain a safe distance from overhead hazards.
4. Utilize a spotter as applicable.

If the lift is not designed for elevated driving, the equipment shall be lowered before repositioning or moving the lift to another work area.

### Fall Protection

All employees who operate or occupy telescoping boom lifts or articulating boom lifts shall wear and tie-off to the manufacturer's anchorage point whenever operating this equipment.

Employees operating scissorlifts shall tie-off to the equipment if so provided with an anchorage point designed or approved by the manufacturer for such use.

### Record Retention

Qualified or Authorized Employee training records must be maintained for a period of three years. Aerial Lift Inspection Reports including the date performed, deficiencies, corrective action, and identification of the person performing the work must also be maintained for the same time period.

### Training

All employees who will be operating aerial lifts during the course of their employment shall receive and successfully complete operator training prior to utilizing an aerial lift. This training shall take place upon new hire or as conditions require aerial lift use. Refresher training shall be conducted if the employee is observed performing a dangerous or improper activity as specified in this policy.

### Appendices

Appendix A – Aerial Lift Inspection Report

## Appendix A Aerial Lift Inspection Report

1. Project #/Location: \_\_\_\_\_

2. Equipment #: \_\_\_\_\_ 3. Type of Lift: \_\_\_\_\_

4. Inspection Date: \_\_\_\_\_ 5. Operator Name: \_\_\_\_\_

INSTRUCTIONS: 1) Complete report prior to use. Use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the on-site project manager or superintendent immediately.

2) This document shall be maintained at the job-site or production facility. A copy shall be forwarded to proper maintenance locations as applicable.

CODES: G = Good Condition; N/A = Not Applicable; NR = Need Repair; M = Missing (needs replacement)

Daily Visual Checks		Date	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Comments (Date of repairs)
1	Operation & safety manual									
2	Warning & instruction decals									
3	Capacity & control decals									
4	Controls & emergency down valves operate properly									
5	All covers & shrouds in place									
6	Lift & extension cylinder assemblies									
7	Pivot pins & retainers									
8	Boom(s)/Scissorlift(s) condition									
9	Slave level cylinder & retainers									
10	Master level cylinder									
11	Electrical wires									
12	Battery condition & brackets and covers in place									
13	Battery charger condition & properly wired with ground									
14	Tire condition, inflation, & lugs									
15	Outriggers/extendible axles									
16	Gas & hydraulic tank caps									
17	Turret condition									
18	Platform rails & cages									
19	Toe boards & mesh condition									
20	Control box assembly									
21	Platform decking									
22	Platform lanyard connections									
23	Platform mount assembly									

Signature of operator inspecting lift:

Sun. \_\_\_\_\_  
 Mon. \_\_\_\_\_  
 Tues. \_\_\_\_\_  
 Wed. \_\_\_\_\_

Thur. \_\_\_\_\_  
 Fri. \_\_\_\_\_  
 Sat. \_\_\_\_\_

Copy Distribution:

Maintained in Lift Project or Equipment File

# Fall Prevention and Protection

## Section 13.1

### Purpose

The Company has developed the following Fall Prevention and Protection Program to protect all company personnel from falls and fall exposures. All employees working on Company projects or in production facilities and exposed to falls of 6 feet or greater shall be protected from falls through engineering, administrative, or personal protective equipment controls.

### References

29 CFR 1926.501, 1926.106

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing training, resources, and technical assistance in support of this program. In addition, they shall also periodically audit projects and production facilities to assure these rules have been implemented and enforced.

#### *Employee*

Shall be responsible for inspecting and utilizing fall protection equipment when they are exposed to a fall or fall hazard, six feet or greater, above or adjacent to a walking or working surface. Employees shall be responsible for observing these rules and accountable for their workplace actions.

### Project Pre-Planning

The key to this Fall Prevention and Protection Program is in the evaluation of anticipated tasks for fall hazards and exposures. This evaluation shall be done by a competent person trained in the recognition of fall

hazards. Whenever feasible, they shall research the implementation of a suitable or otherwise feasible engineering control to eliminate the fall hazard when such hazard exists. If no such fall prevention system is feasible, this individual(s) shall implement a fall protection system that will satisfactorily safeguard any employee that may be exposed to the fall hazard. For the purposes of this policy, Fall Prevention and Fall Protection Systems are defined as follows:

#### *Fall Prevention*

Elimination of falls of 6 feet or greater during all phases of applicable work tasks by means of implementing permanent or semi-permanent floors, walls, stairways, scaffolding platforms, guardrail systems, aerial lifts, etc.

#### *Fall Protection*

Selecting and installing a fall protection system to eliminate falls of 6 feet or greater by means of an approved personal fall protection system or equipment when a fall prevention system cannot be implemented.

### Walking / Work Surface Fall Protection Requirements

Any employee who is working or walking on a surface (horizontal or vertical) with an unprotected side or edge, which is 6 feet or more above a lower level shall be protected from falling by the use of a guard rail system, safety net, or personal fall arrest system. These surfaces include, but are not limited to:

1. Unprotected sides and edges,
2. Ramps, runways, and other walkways,
3. Roof work, low and steep slope roofs,
4. Hoist bays,
5. Excavations,
6. Pre-cast concrete sections,
7. Holes and pits,
8. Dangerous and elevated equipment,

# Fall Prevention and Protection

## Section 13.1

9. Formwork and reinforcing steel,
10. Overhead bricklaying,
11. Wall openings.

### General Requirements for Fall Protection

At least one of or a combination of the following fall protection systems shall be used at heights greater than 6' (or less if conditions warrant):

1. Guardrail systems
2. Warning line systems
3. Personal fall arrest system
4. Safety net system
5. Safety monitoring system
6. Fall Protection Plan

The Manager / Supervisor shall ensure that all employees have received training for the type of fall protection they will be utilizing. They shall also determine if the walking or working surface has sufficient strength and or structural integrity for the loads imposed or for anchorage connection applications. This individual or their designee, upon procurement of personal protective equipment and / or systems shall assure that it conforms to all applicable ANSI / ASTM Standards.

### Dangerous Equipment

Each employee working less than 6 feet above dangerous equipment shall be protected from falling into or onto dangerous equipment by a guardrail system or by equipment guards.

Each employee working 6 feet or more above dangerous equipment shall be protected from fall hazards by a guardrail system, personal fall arrest system, or safety net system.

### Guardrail System Requirements

1. Guardrails shall have a top edge member at 42 inches (plus or minus 3 inches) above a walking working surface.
2. Midrails shall be installed at a height midway between the top edge of the guardrail system and the walking working level (approximately 21 inches).
3. Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 lbs. applied within 2 inches of the top edge of the rail in any outward or downward direction.
4. Guardrail systems shall be surface to prevent injuries from punctures, lacerations, or snagging of clothing. Ends of top and midrails are not to overhang past the terminal post except when by doing so does not constitute a projection hazard.
5. Steel or plastic banding, manila, or synthetic rope shall not be used as top or midrail construction materials.
6. Guardrail systems at holes are to be erected on all unprotected sides or edges. Guardrail systems used at hoisting areas require a gate or removable section placed across the access opening when hoisting operations are not taking place.
7. Guardrail systems placed at points of access, such as ladderways, are to be provided with a gate or offset so a person cannot walk directly into the hole.
8. Top and midrails must be a minimum of at least ¼ inch nominal diameter or thickness to prevent cuts or lacerations.
9. Wire rope top rails are to be flagged with a high visibility material at no more than 6 feet intervals.

# Fall Prevention and Protection

## Section 13.1

### Specific Guardrail Construction Material Requirements

#### *Wood Railings*

1. Posts shall be of at least 2 inch by 4 inch stock with spacing no greater than 8 foot centers.
2. The top rail must be no less than 2 inch by 4 inch stock.
3. The mid rail must be no less than 1 inch by 6 inch stock.

#### *Pipe Railings*

1. Posts and top and mid rails shall be at least 1-½ inch diameter.
2. Posts spaced not more than 8 feet on center.

#### *Structural Steel Railings*

1. Posts and top and midrails shall be of 2 inch by 3/8 inch angle stock.
2. Posts spaced not to exceed 8 feet on center.

#### *Wire Rope Railings*

1. Top and midrails are to be a minimum of 3/8 inch diameter and smooth to prevent any laceration or snagging of clothing.
2. Deflection is not to exceed 3 inches in any direction.
3. Ends of wire rope are to be looped and appropriately secured with 3 wire rope fasteners.

#### *Toe Boards*

1. Are to be of nominal 4 inch wood width or 4 inches minimum in vertical height from top edge to the level of the floor.
2. Securely fastened in place and have not more than ¼ inch clearance above floor level.

3. Shall be made of a substantial material, either solid or with opening not to exceed over 1 inch in greatest dimension.

#### *Wire Rope Perimeter Guard Rails*

1. A safety railing of ½ inch wire rope shall be installed at approximately 42 inches high, around all temporary-planked or temporary metal-decked floors of tier buildings and other multi-floored structures during structural steel assembly.
2. All turn back connections shall be affixed with 3 wire rope fasteners.
3. Once the permanent floor is in place, mid cables and toe boards shall be added.

### Warning Line Systems

Warning line systems are barriers erected on a roof to warn employees they are approaching an unprotected side or edge and delineates an area where roofing work may take place without the use of a guardrail or personal fall arrest system.

When used, warning line systems shall comply with the following requirements:

1. Erect warning lines around all sides of the roof work area.
2. Warning lines shall be erected not less than 6 feet from the roof edge.
3. When mechanical equipment is being used, the warning line shall be placed not less than 6 feet from the roof edge which is parallel to the direction of the mechanical equipment operation, and not less than 10 feet from the roof edge perpendicular to the direction of mechanical equipment operation.
4. Points of access, material handling, storage areas, and hoisting areas are to be connected to the work area by an access path formed by two warning lines. When not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, is to be placed across the path at the point where the path

# Fall Prevention and Protection

## Section 13.1

intersects the warning line erected around the work area, or the path is to be offset so a person cannot walk directly into the work area.

Warning line construction specifications shall consist of:

1. Rope, wire, or chain flagged at not more than 6 foot intervals with high-visibility material.
2. Lowest point of the warning line is not less than 34 inches and no higher than 39 inches from the walking / working surface.
3. Stanchions are capable of resisting, with lines attached, a force of at least 16 lbs. applied horizontally without tipping over.
4. Rope, wire, or chain shall have a minimum tensile strength of at least 500 lbs.
5. Lines attached at each stanchion are to be constructed so that pulling on one section of line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

### Low and Steep Sloped Roof Work

For the purposes of this policy, a low sloped roof is that of a 4 to 12 pitch or less. A steep sloped roof is that of a greater than 4 to 12 pitch. The requirements for each type are listed as follows:

#### *Low Sloped Roofs*

Employees working on this type of surface and exposed to unprotected sides and edges 6 feet or more above a lower level shall be protected by:

1. Guardrail systems.
2. Personal fall arrest systems.
3. Combination of a warning line system and guardrail, personal fall arrest system, or a safety monitoring system.
4. Safety monitoring systems can only be used on roofs 50 feet or less in width.

#### *Steep Sloped Roofs*

Employees working on this type of surface and exposed to unprotected sides and edges 6 feet or more above a lower level shall be protected by:

1. Guardrail systems with toe boards.
2. Personal fall protection.

### Floor, Roof, and Hole Openings

Floor, roof, and hole openings shall be affixed with covers that meet the following requirements:

1. Any hole 2 inches or greater in least dimension in a floor, roof, or other walking / working surface shall be protected with a cover. The cover must be capable of supporting, without failure, at least twice the maximum intended load.
2. Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
3. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed at any time.
4. Covers shall be secured to prevent accidental displacement.
5. Covers are to be marked with the word "hole" or "cover" to provide warning of the hazard.

### Personal Fall Arrest System Requirements

When engineering controls or other feasible fall prevention systems cannot be implemented to eliminate fall exposures, the Company will provide suitable fall arrest systems and / or personal protective equipment to protect employees from fall hazards of 6 feet or greater.

The requirements for personal fall arrest systems and / or equipment are as follows:

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1. When personal fall arrest systems are utilized, 100% tie-off shall be maintained at all times.
2. Employees will be required to utilize full body harnesses as part of the fall arrest system. D-rings shall have a minimum tensile strength of 5,000 lbs.
3. Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 lbs. Snap hooks are to be of the locking type and used only in conjunction with a full body harness attached at the D-ring located in the center of the employee's back.
4. When vertical lifelines are used, each employee is to be attached to separate lifeline that is protected from being cut or damaged.
5. All personal fall arrest systems are to be used only for employee protection and no other purpose.
6. Anchorages for attachment of personal fall arrest equipment must be capable of supporting a minimum of 5,000 lbs. per employee.
7. Personal fall arrest systems, when stopping a fall, shall:
  - a. Limit maximum arresting force on an employee to 1,800 lbs. when used with a full body harness.
  - b. Be rigged so an employee cannot free fall more than 6 feet, nor come into contact with a lower level.
  - c. Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3 feet 6 inches.
8. Personal fall arrest systems and components subjected to impact loading shall be removed from service and not used again, unless inspected and determined by a competent person to be undamaged and suitable for reuse.
9. A means of retrieval / rescue must be available in the event of a fall.
10. Personal fall arrest systems may not be attached to guard rail systems. When used adjacent to hoisting areas, they shall be rigged so the person can only go as far as the edge of the walking / working surface to eliminate the hazard (fall restraint).
11. All equipment used in the personal fall arrest system(s) shall be inspected prior to use for wear, damage, and other deterioration.

### Controlled Access Zones (CAZ)

If used, the Company shall conform to the following provisions:

1. Erect and maintain control lines to restrict access to leading edges with fall exposures of 6 feet or greater.
2. When control lines are used, they shall be erected not less than 6 feet nor more than 25 feet from the unprotected or leading edge.
3. The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected edge.
4. The control line shall be connected on each side to a guard rail system or wall.
5. Control lines shall consist of ropes, wires, tapes, or equivalent materials and support stanchions as follows:
  - a. Each line shall be flagged or otherwise clearly marked at not more than 6 feet intervals with a high visibility material.
  - b. Each line shall be rigged and supported in such a way that its lowest point is not less than 39 inches nor more than 45 inches from the walking / working surface.
  - c. Each line shall have a minimum breaking strength of 200 lbs.

# Fall Prevention and Protection

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\* These requirements are not inclusive of specific rules for overhand bricklaying operations.

### Safety Monitoring Systems

If used, the Company shall designate a competent person to monitor the safety of all applicable employees. This safety monitor shall:

1. Be competent to recognize fall hazards.
2. Warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.
3. Be located on the same walking / working surface and within visual distance of the employee(s) being monitored.
4. Be positioned close enough to communicate orally with employee(s).
5. Not have other responsibilities which could take the monitor's attention from the monitoring function.

Mechanical equipment shall not be stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-sloped roofs.

No employee, other than an employee engaged in roofing work (on low-sloped roofs) or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

Each employee working in a (CAZ) shall be directed to promptly comply with fall hazard warnings from safety monitors.

### Working Over or Near Water

Employees working over or near water, where the danger of drowning exists, shall be provided with Coast Guard approved life preservers.

Prior to and after each use, the life preservers shall be inspected for defects which would alter their strength or buoyancy.

Ring buoys with at least 90 feet of line shall be provided and be readily available for emergency rescue operation. The distance between ring buoys shall not exceed 200 feet.

At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

### Training

Each employee who will be exposed to a fall hazard is to be trained by a competent person. The training shall address the fall prevention and protection systems available for use, recognition of fall hazards, and instruction on how to minimize such hazard. All employees shall receive fall prevention and protection training upon new hire, as applicable.

Retraining shall be conducted whenever there is a change in the work environment warranting such training, change in the types of fall protection systems and / or equipment being used, or when the employee(s) demonstrate a lack of comprehension, understanding, or proficiency with fall prevention and protection systems or equipment. All fall prevention and protection training shall be documented to include: the name of the employee trained, date of the training, and the signature of the instructor conducting such training.

# Cranes, Derricks, and Hoisting Equipment

## Section 14.1

### Purpose

The Company has developed the following policy and procedures for the safe operation, maintenance, and inspection of cranes and other mobile lifting devices.

### References

29 CFR 1926.1427

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for assuring these rules have been communicated to all applicable employees. Managers and Supervisors shall perform a scope review of the type and capacity of crane and other mobile lifting devices required to perform the work. This review shall identify site conditions, site preparation, associated hazards, and or any limitations that can affect safe usage.

#### *Safety Manager*

Shall assist Managers and Supervisors with applicable aspects of this program. They shall also periodically audit projects and production areas to assure these rules have been implemented and enforced.

#### *Crane / Lift Operators*

Shall be trained, evaluated and certified through an accredited testing agency. Only certified operators should operate equipment that will be utilized for lifting operations. Certified operators shall be proficient in all aspects of crane and other lifting devices they will be assigned to operate. Operators have the ultimate responsibility and authority to stop any lifting activity if weather conditions, improper rigging, load shifts, capacity or boom alarms, or any other condition warrant such lift stoppage.

#### *Designated Signal Person*

Shall have the responsibility to provide universal hand or radio signal communications, or a combination of both, to the Operator for all

crane or other lifting device's movements.

A signal person must be certified through a third party evaluation or qualified evaluator.

### General Requirements for Cranes, Derricks, and Hoists

The requirements and procedures outlined in this section apply to the following types of cranes, derricks, and hoists:

1. Crawler, tower, gantry, and overhead cranes.
2. Wheel-mounted cranes of both truck and self-propelled type.
3. Hand-operated, overhead, and air electric powered hoists.
4. Any variations that retain the same basic characteristics as cranes, derricks, and hoists.

#### *Requirements and Procedures*

1. Only certified personnel shall be permitted to operate a crane derrick or hoist. Consult local jurisdictions for more stringent operator requirements.
2. After adjustments and / or authorized repairs have been made, the equipment shall not be operated until:
  - a. All guards have been reinstalled.
  - b. Safety devices are activated.
  - c. Maintenance equipment is removed.
3. All cables, ropes, slings, and chains used for hoisting and lifting loads shall be inspected. Only heat-treated, alloy steel chains stamped with an "A" grade on each link shall be used in hoisting operations.
4. Employees shall never position themselves under the load, and when practical, the area adjacent to the lift area shall be roped off or barricaded to prevent employees from entering the area.

# Cranes, Derricks, and Hoisting Equipment

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5. Suspended loads shall never be left unattended or improperly barricaded.
6. Before swinging or lifting a load over areas where employees are working, an audible warning shall be sounded that can be identified above that of the surrounding ambient construction and/or production area noise level.
7. Taglines for controlling loads shall be used whenever necessary for protection of personnel, equipment, or structures.
8. All hoisting hooks shall be equipped with approved safety latches.
9. Loads shall be attached to hooks by way of slings, chains, or other approved devices.
10. All overhead power lines shall be treated as energized. When working in close proximity to this equipment, a minimum of 20 ft of safe clearance to any crane or crane component shall be maintained. However, extremely high voltage power line may require a distance more than 20ft. Spotters shall be used to maintain this safe approach distance at all times.
11. A hook must not be overloaded beyond its rated capacity. The load shall be properly positioned and secured in the hook.
12. All crane, derrick, and hoists that will be operated at night shall be outfitted with clearance lights denoting the maximum height of the equipment.
13. Hoist cables or chains must not be wrapped around loads. Lifting cables shall be protected from sharp, rough, or square corners by softeners or other appropriate means to prevent damage to rigging strands, wires, or links.

### Specific Crane Requirements

A crane will support the load only if the ground will support the loaded crane. The ground on which the crane is positioned shall be within

1% of level grade, well compacted, and stable enough to support the weight of the crane, its load, and rigging without collapse or significant deflection.

All load chart ratings are based on the machine being perfectly level in all directions. One of the most severe effects of not being level is that side loads develop in the boom causing mobile cranes to lose capacity rapidly as the degree of out of level increases. The target levels provided internally on most machines can be used for initial leveling but should not be used for precision and/or final leveling.

Cranes equipped with outriggers shall deploy such stabilizing equipment for all lifts requiring "on outrigger" load chart applications. Outriggers shall be fully extended prior to the commencement of lifting activities. When outriggers are utilized, the crane wheels shall clear the ground. The "on rubber" load chart shall be used for any application in which outriggers can not be fully extended.

The ground pressure created by a crane on outriggers is considerable. Since the area of the outrigger mat is relatively small, the corresponding pressure is high. The soft or low density soils found on a majority of project locations can not withstand these pressures without deflecting or sinking. To prevent this, mats or blocking shall be used to distribute the load over as large an area as possible. Extra precautions shall be exercised whenever a crane is placed next to an excavation or other ground opening that presents a risk of collapse due to the ground pressure created during use.

The following specific crane requirements shall be observed and implemented for all crane activities:

1. The crane's controls shall be within convenient reach when the Operator is positioned in the direction of the load hook or in the direction of travel. The Operator must have a full view of the hook and load in all positions.
2. An accessible fire extinguisher of 5 "BC" rating or higher shall be available at Operator's stations or crane cabs.

# Cranes, Derricks, and Hoisting Equipment

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3. All windows in cabs shall be of safety glass and cause no visible distortion or obstruction that would interfere with the safe operation of the equipment. All broken glass shall be replaced promptly.
4. A designated person shall observe crane clearances and give warnings for all operations where the Operator has difficulty viewing the load, boom, cab, track, or path of travel.
5. Personnel effects inside the cab of cranes shall be stowed or otherwise secured to not interfere with any safety device or operational controls.
6. The load rating of the crane shall never be exceeded. The rated load capacity, operating speed, and special warnings unique to the equipment shall be conspicuously posted and visible to the Operator at the control station or cab.
7. Planking mats, or blocking shall be installed under outriggers whenever feasible.
8. Crane booms shall be lowered when there is a danger from high winds or lightning.
9. The Operator of crane shall lock the load and boom hoists and set the house lock before leaving the cab.
10. Should the crane contact a high-voltage line and can not disengaged, the Operator shall stay on the crane until the line can be de-energized. If there is an imminent danger to the operator, the operator should jump entirely clear of the unit, keeping their feet close together and jumping so that both feet hit the ground at the same time. The Operator must not return to the crane for any reason until the scene is determined to be safe by an electric utility or other dependable source.
11. Operators shall only take load and movement instruction from a certified signal person.
12. Crawler cranes or other similar equipment shall be effectively barricaded to prevent unauthorized personnel from entering the pinch point created by the track and the rotating superstructure.
13. Project managers shall complete the Crane Insurance Request Form, listed at *Appendix A* of this section, and submit to the APi Risk Management Department for rented or leased cranes with an equipment value exceeding \$500,000.00.
14. Personnel responsible for hiring Crane Operators shall endeavor to hire certified operators from accredited testing agencies.

### Specific Derrick Requirements

The additional specific derrick requirements shall be observed and implemented for all applicable work activities:

1. Only certified persons, who have been trained, evaluated and certified in safe work practices, shall be allowed to operate derricks.
2. Managers or Supervisors shall implement a preventative maintenance and inspection program for derricks. Inspections on this equipment shall be conducted monthly by a competent person on the following items:
  - a. Ropes
  - b. Sheaves and pulleys
  - c. Structural Members
3. Supervisors shall create a monthly inspection record for item #2, with specific detail for the ropes inspected, the date performed, and the name of the inspector.

### Specific Requirements for Hoists

1. The supporting structure to which a hoist is attached shall have a safe working load at least equal to that of the hoist. This rating shall be clearly marked or stenciled on the side of the supporting structure.
2. The supporting structure to which the hoist is attached shall be positioned to provide

# Cranes, Derricks, and Hoisting Equipment

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- free movement and allows the load to be centered directly under the hoist.
3. Hoists shall be installed in locations that will permit the Operator to stand clear of the load at all times.
  4. Air-powered hoists shall be connected to an air supply of sufficient capacity and pressure that meets the manufacturer's specifications and affords safe operation. All air hoses shall be positively connected to prevent disconnection during use.
  5. All hoisting chains, slings, cables, and ropes shall have at least the same working load rating as the hoist. Most hoisting chains are labeled with capacity in tons. If not marked, the capacity can be stamped on a durable material and attached to the chain.
  6. Operators shall adequately safeguard lifting or hoisting bays to keep employees or other personnel from entering the area when lifting / hoisting operations are being conducted.
  7. No person shall stand under a suspended load.
  8. Load weights shall be identified prior to any lifting activities.
  9. When a load approaches the rated capacity of the hoisting equipment, the Operator shall test the brakes by raising the load a few inches and applying them.
  10. Empty hooks, when not in use, shall be latches or otherwise restrained to prevent swinging.
  11. Crane outriggers shall be used when the load to be lifted at a particular radius exceeds the rated load without outriggers as specified by the manufacturer.
  12. Multiple part hoisting lines shall not be twisted around each other.
  13. On truck-mounted cranes, no loads shall be lifted over the front area except as approved by the crane manufacturer.
  14. Neither the load nor crane boom shall be lowered below the point where less than two full wraps of rope remain on the spools or drums.

### **General Requirements for Lifting and Moving loads**

1. The load must be well secured and properly balanced in the sling or other rigging prior to lifting.
2. Hoisting ropes shall be free of kinks.
3. Hooks shall be aligned over the load in such a manner as to prevent swinging. (Pendulum effect).
4. Precautions shall be taken to prevent loads from hitting or snagging adjacent equipment or obstructions.
5. Sudden Acceleration or deceleration (shock-loading) of a moving load shall be avoided.
6. No person shall ride on the load or hook at any time.
15. When repositioning or mobilizing cranes, boom shall be parallel to the direction of travel.
16. The crane superstructure shall be secured against rotation, except when negotiating turns with the Operator in the cab.
17. A crane with or without a load shall not travel with the boom raised such that it may bounce back over the cab.
18. A certified signal person shall be assigned the responsibility to provide crane signals to the Operator. The Operator shall obey signals from this certified signal person only. However, a signal to "STOP" should be immediately obeyed regardless of who initiates such command.

# Cranes, Derricks, and Hoisting Equipment

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19. The certified signal person shall issue crane signals to the Operator as identified in *Appendix B* of this policy, entitled Crane Signals.
20. If the crane or hoist loses power during operation, all control levers must be placed in the "OFF" position until power is restored.
21. Critical pick procedures shall be implemented if they meet the definitions outlined in this section or by owner request.
22. When two or more cranes are required to perform a lift, the Operators shall take their signals from one certified signal person.
23. Crane Operators shall not use limit switches to stop under normal operating conditions. (Such devices are for emergency purposes and shall not be used as operating controls).
24. Prior to making any lift, wind speed shall be determined and appropriate precautions shall be taken per the crane manufacturers' recommendations.

### Critical Lifts

A critical lift procedure, listed as *Appendix C* of this section, shall be performed prior to any lifting activity for one or more of the following situations and/or conditions or by owner request:

1. Any load exceeding 85% of the crane's (tandem or multiple) rated capacity for the intended configuration.
2. Significant factors impact the safe execution of the lift, such as wind speed or proximity to high voltage equipment.
3. Wind speed exceeds 20 m.p.h.
4. Damage to the equipment being picked up has serious impact project schedule and / or completion.

5. Serious potential of damage and/or downtime to existing operations due to lifting activities.

### Personnel Platforms

If employees shall be working in personnel platforms, suspended by a crane, the crane must be outfitted with an anti-two-blocking device. The following requirements shall also apply:

1. Personnel platforms shall only be used when it can be demonstrated that alternate work methods are not feasible or present a greater hazard.
2. Personnel platforms and suspension systems shall be designed by a qualified engineer or qualified person competent in structural design.
3. A trial lift of the unoccupied personnel platform and rigging shall be performed at 125% of the platform's rated capacity prior to personnel actually occupying and / or working from the platform. Once completed, a qualified person shall inspect the platform and rigging for deficiencies and make corrections as applicable. The certified Operator shall inspect all operational aspects of the crane or derrick after this lift to assure that all systems, controls, and safety devices are functioning properly.
4. The trial lift shall be documented on *Appendix D* of this document, listed at the Trial Lift Documentation Form.
5. The trial lift shall be repeated any time the crane is repositioned from the spot in which the first trial lift was performed.
6. The personnel platform rigging shall be attached to a master link that is centered over the top of the basket. A secondary attachment to the master link shall be attached above the headache ball or block assembly.
7. All personnel platforms shall be equipped with an identification tag or other

# Cranes, Derricks, and Hoisting Equipment

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permanent marking denoting the weight of the platform and its rate load capacity or maximum intended load.

8. Personnel platforms shall be only for employees, their tools, and the materials necessary to do their work. All tools and materials shall be secured to prevent movement.
9. Except for use over water, employee's occupying personnel platforms shall use a safety harness and lanyard attached to a structural member within the platform capable of supporting an employee in the event of a fall.
10. The certified operator of the crane shall remain in the cab at all times when employees occupy the platform. The crane shall not travel while personnel are suspended in the platform.
11. Access gates to personnel platforms shall be equipped with a restraining device to prevent accidental opening. The gate must be designed to swing inward and equipped with a positive lock.
12. The total weight of the loaded platform and related rigging shall not exceed 50% of the rated load capacity for the radius and configuration of the crane.
13. Hoisting of employees shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.

### Inspections and Testing Requirements

#### *Manufacturer's Recommendations*

The Supervisor / Manager shall assure that all cranes and related hoisting equipment owned or under the control of the Company are thoroughly inspected and tested according to the manufacturer's recommendations. In the event of a rental crane, the supplier shall assure the crane is satisfactorily tested and inspected. These inspections and tests shall only be performed by those personnel who are trained in the detection and assessment of

defects and potential hazards that could limit the safe performance of the crane and hoist operations.

#### *Inspection Criteria*

There are four types of inspections that must be completed for cranes and hoists, they are as follows:

1. Initial daily inspections,
2. Frequent inspections (daily to monthly intervals).
3. Periodic inspections (1 to 12 month intervals).
4. Annual inspections.

#### *Initial Inspections*

Before initial use, a qualified person must perform an inspection on all new or altered cranes and hoists following the requirements of the frequent and periodic inspection criteria outlined in this program.

#### *Frequent Inspections (Daily to Monthly Intervals)*

A competent person may perform the inspection. Frequent inspections require that components that have a direct bearing on the safety of the crane and whose status can change from day-to-day be inspected on a daily basis. The criteria for such inspections can be found in *Appendix E* of this program, entitled Daily Crane Inspection Report.

#### *Periodic Inspections*

Periodic Inspections for cranes, derricks, and hoists maybe performed by a competent person, and must be completed at 1 to 12 month intervals (depending upon the frequency of use). The inspection criteria for periodic inspections is outlined in this program in *Appendix F*, entitled Monthly Crane Inspection Report, *Appendix G*, entitled Chain Fall Inspection Report, *Appendix H*, entitled Powered Hoist Inspection Report.

# Cranes, Derricks, and Hoisting Equipment

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### *Annual Inspections*

A qualified person must conduct annual inspections for cranes; inspections shall include, but not be limited to:

1. Magnetic particle or other suitable crack detection of the load block and boom.
2. All safety devices.
3. All components of air and hydraulic systems.
4. All sections of wire rope and related components for excessive wear and defects.
5. All sections of wire rope for corrosion, cracks, and defects.
6. Checking for defective parts that may jeopardize safe operations.
7. Structural members must be inspected for corrosion, cracks, and defects.
8. Excessive wear on brakes, clutches, and pawls.
9. Load and boom angle indicators for proper operation.
10. Inspection of proper weight chart.
11. Inspection of boom junctions for excessive wear, cracks, deformities, and other defects in securing bolts and welds.
12. Proper loading of counter weights.
13. Inspection of slings and load hauling devices.
14. Other inspections deemed necessary by circumstances.

### *Inspections for Cranes, Derricks, and Hoists Not in Regular Service*

The crane, derrick, and hoist inspection intervals are determined by the frequency of use. A few examples have been provided to

aid in determining inspection frequency:

1. If a crane, derrick, or hoist is used on a daily basis, then a frequent inspection must be completed daily and a periodic inspection conducted monthly.
2. If a crane, derrick, or hoist is used only once every six months, then a frequent and periodic inspection must be done prior to use.
3. Any crane, derrick, or hoist out of service for a period of six months or more, shall be thoroughly inspected including; laying out wire ropes to examine for defects and inspecting drums and pulleys for wear and deformities.

### *Running Rope Inspections*

Running ropes shall be inspected semi-annually for defects. The supervisor / manager shall be responsible for assuring this requirement is met and for maintaining documentation of such inspection. The documentation record shall include the date of the inspection, the signature of the person performing the inspection, and identification of the rope inspected.

### *Inspection Records*

Certification records shall be maintained and kept readily accessible. The records shall include:

1. The date of the inspection.
2. The signature of the person who performed the inspection.
3. The serial number or other identifier unique to the crane, derrick, or hoist.

### *Inspection Summary*

Inspections performed on cranes, derricks, and hoists are paramount to their safe operation. It is important that we routinely inspect this equipment daily before each use and periodically thereafter, as spelled out in this program, for the safety of our employees, others who work adjacent to us, and to prevent damage or loss to company and or client

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assets. If a deficiency is noted for any of this equipment noted, the crane, derrick, or hoist shall be removed from service and tagged "Danger - Do Not Use" until such time the deficiency is corrected. All deficiencies shall be communicated to the Supervisor / Manager and corrected as soon as possible.

### Slings, Chains, and other Load Handling Devices

Prior to each use, slings, chains, and other load handling devices shall be inspected for damage or defects by a qualified person. The inspection for these devices shall include, but be limited to:

1. Frayed or torn materials.
2. The presence of knots, bolts or other makeshift devices to shorten the length of load handling devices.
3. Cracked or deformed master links, coupling links, or other components in alloy steel chains.
4. Cracked or deformed hooks.
5. Wire rope slings must be removed from service if either of the following conditions is present:
  - a. Ten randomly distributed broken wires in one rope lay are found, or
  - b. Five broken wires in one strand in one rope lay are found.
6. Excessive wear or scraping of 1/3 of the original diameter of outside individual wires making up wire rope.
7. Kinking, crushing, bird-caging, or any other damage resulting in distortion of a wire rope structure.
8. Cracked, deformed, or worn end attachments.
9. Corrosion of a wire rope or end attachments.

10. Broken weld or broken brazed joint along the edge of a metal mesh sling.
11. Lack of flexibility due to the distortion of the sling fabric, in metal mesh slings.
12. Charring or melting on any part of a synthetic web sling surface.
13. Snags, punctures, tears, or cuts in the surface of a synthetic web sling.
14. Broken or worn stitches in synthetic web slings.
15. Distortion of fittings.
16. Cuts or gouges in chains and other materials.
17. Twists, bends, or deformities in hooks or safety latches.

### Sling and Load Handling Device Identification

Alloy steel chain slings shall have permanently affixed to them a durable identification tag stating:

1. Size,
2. Grade "A",
3. Rated capacity and manufacturer name.

### Crane and Hoist Testing

1. Each new production crane or hoist shall be tested prior to use by the manufacturer.
2. The certified production tests shall be provided by the manufacturer and be made available for review at all times.
3. Cranes and hoists must be load tested whenever repairs or alterations are made.
4. Test loads shall not exceed 110% of the rated load at any selected working radius. No crane or hoist shall be re-rated in excess of the original load ratings unless such rating changes are approved, in

# **Cranes, Derricks, and Hoisting Equipment**

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writing, by the crane or hoist manufacturer.

5. Any repair or modification of a crane, derrick, or hoist shall not be performed without the express written consent by the manufacturer. All equipment undergoing repair shall be conspicuously placarded with signage that indicates "out of service".

### **Training**

All applicable employees shall receive training on this program upon new hire and annually thereafter. Employees observed performing activities that violate this program shall receive refresher training or disciplinary action as conditions warrant.

### **Appendices**

Appendix A – Crane Insurance Request Form

Appendix B – Crane Signals

Appendix C – Critical Lift Checklist

Appendix D – Trial Lift Documentation Form

Appendix E – Daily Crane Inspection Report

Appendix F – Monthly Crane Inspection Report

Appendix G – Chain Fall Inspection Report

Appendix H – Powered Hoist Inspection Report

**Appendix A  
Crane Insurance Request Form**

To ensure proper insurance coverage, please complete the following information when renting or leasing cranes that have a value greater than \$500,000. You can fax this form to:

APi Risk Management

Please allow as much advanced notice as possible.

Thank you.

Year, Make & Model	
Value	
Experience of Operator	
Origin of Operator (Insured's or leasing Company)	
Assembly Required	
Transit Required	
Multiple Lifts	
Tandem Lifts	
Full Description of the Pick/Job to be Performed	
Term to be Insured	
Other Information	

# KNOW YOUR CRANE SIGNALS

 <p><b>STOP (A)</b> Extend one arm and hold palm of hand vertical. <b>NOTE: EMERGENCY STOP is indicated by holding both arms up.</b></p>	 <p><b>STOP (B)</b> Arm extended, palm down, move hand right and left. Usually for different level operations.</p>	 <p><b>HOLD EVERYTHING</b> Clasp hands in front of body.</p>	 <p><b>HOIST</b> With forearm vertical, forefinger pointing up, move hand in horizontal circles.</p>	 <p><b>LOWER</b> With arm extended down, move arm in horizontal circles.</p>
 <p><b>MOVE SLOWLY</b> Place one arm motionless across chest in conjunction with or before giving any other directional signal. ("Hoist slowly" shown as example).</p>	 <p><b>RAISE BOOM (LUFF UP)</b> Arm extended, fingers closed, thumb pointing upwards.</p>	 <p><b>LOWER BOOM (LUFF DOWN)</b> Arm extended, fingers closed, thumb pointing downwards.</p>	 <p><b>SLEW</b> Arm extended, point with finger in direction of swing of boom. <b>OVERHEAD GANTRY CRANE</b> Arm extended, point with finger in the long travel or cross travel direction.</p>	 <p><b>RAISE BOOM LOWER LOAD</b> One arm extended, finger closed, thumb pointing upwards. Other arm extended downward with forefinger pointing down, move arm in horizontal circles.</p>
 <p><b>LOWER BOOM RAISE LOAD</b> One arm extended, fingers closed, thumb pointing downwards. Other arm vertical with forefinger pointing up, move arm in horizontal circles.</p>	 <p><b>EXTEND BOOM or TROLLEY OUT (TOWER CRANE)</b> Both fists in front of body with thumbs pointing outward.</p>	 <p><b>RETRACT BOOM or TROLLEY IN (TOWER CRANE)</b> Both fists in front of body with thumbs pointing toward each other.</p>	 <p><b>USE MAIN HOIST</b> Tap fist on head, then use regular signals.</p>	 <p><b>USE FLYLINE (AUXILIARY HOIST)</b> Tap elbow with one hand, then use regular signals.</p>
 <p><b>FINISHED WITH CRANE</b> Place arms above head and cross hands.</p>	 <p><b>TRAVEL</b> Arm bent at the elbow, fists clenched, rotate both forearms around each other then point in the direction of travel.</p>	 <p><b>TRAVEL (One track-Crawler cranes only)</b> Lock the track on the side indicated by the closed fist. Travel opposite track in the direction indicated by circular motion of other fist rotated vertically in front of body.</p>	 <p><b>Western States Fire Protection Co.</b> <i>Protecting Lives and Property</i></p>	
<p>© Cranes, Derricks, and Hoisting Equipment</p>				

## Appendix C Critical Lift Checklist

1. Project Name: \_\_\_\_\_ 2. Job #: \_\_\_\_\_  
 3. Project Supt./Supv.: \_\_\_\_\_  
 4. Subject: \_\_\_\_\_ 5. Date: \_\_\_\_\_

**A LIFT PLAN SHOULD BE COMPLETED PRIOR TO MOBILIZATION OF EQUIPMENT AND RIGGING.**

### A. WEIGHT

1. Equipment Condition: New  Used
2. Weight Empty: \_\_\_\_\_ lbs.
3. Weight of Headache Ball: \_\_\_\_\_ lbs.
4. Weight of Block: \_\_\_\_\_ lbs.
5. Weight of Lifting Bar: \_\_\_\_\_ lbs.
6. Weight of Slings & Shackles: \_\_\_\_\_ lbs.
7. Weight of Jib (Erected/Stored): \_\_\_\_\_ lbs.
8. Weight of Headache Ball on Jib: \_\_\_\_\_ lbs.
9. Weight of Cable (Load Full): \_\_\_\_\_ lbs.
10. Allowance for Unaccounted Material Equipment: \_\_\_\_\_ lbs.
11. Other: \_\_\_\_\_ lbs.

Total Weight:

Source of Load Weight:  
 \_\_\_\_\_  
 (Name Plate, Drawings, Calculated, etc.)

Weights Verified By:  
 \_\_\_\_\_

### B. JIB

Erected? \_\_\_\_\_ Stored? \_\_\_\_\_

1. Is Jib to be used? \_\_\_\_\_ (if yes, then)
2. Length of Jib: \_\_\_\_\_
3. Angle of Jib: \_\_\_\_\_
4. Rated Capacity of Jib (from chart):

### C. CRANE PLACEMENT

1. Any deviation from smooth solid foundation in the area? \_\_\_\_\_
2. Electrical hazards in area? \_\_\_\_\_
3. Obstacles or obstructions to lift or swing? \_\_\_\_\_
4. Swing direction and degree (boom swing)? \_\_\_\_\_

### D. CABLE

1. Number of parts of cable: \_\_\_\_\_
2. Size of cable: \_\_\_\_\_
3. Size of block: \_\_\_\_\_

### E. SIZING OF SLINGS

#### 1. Sling Selection

- a. Type of arrangement (Straight, Basket, Choke, etc.): \_\_\_\_\_
- b. Number of slings in hook-up: \_\_\_\_\_
- c. Sling size: \_\_\_\_\_
- d. Sling Length: \_\_\_\_\_
- e. Rated capacity of sling:

#### 2. Shackle Selection

- a. Pin diameter (inches): \_\_\_\_\_
- b. Capacity (tons): \_\_\_\_\_
- c. Shackle attached to load by: \_\_\_\_\_
- d. Number of shackles: \_\_\_\_\_

**F. CRANE**

1. Type of Crane: \_\_\_\_\_
2. Crane Capacity: \_\_\_\_\_
3. **Lifting arrangement**
4.
  - a. Max distance-center of load to center of crane pin: \_\_\_\_\_ ft.
  - b. Length of boom: \_\_\_\_\_ ft.
  - c. Angle of boom at pick-up: \_\_\_\_\_ degrees
  - d. Angle of boom set: \_\_\_\_\_ degrees
  - e. **Rated capacity of crane under severest lifting conditions:** (from chart)
    1. Over rear: \_\_\_\_\_ lbs.
    2. Over front: \_\_\_\_\_ lbs.
    3. Over side: \_\_\_\_\_ lbs.
    4. From chart – rated capacity of crane for this lift:
    5. Max. load on crane: \_\_\_\_\_

6. Lift is what percentage of the cranes rated capacity? \_\_\_\_\_ %

**G. PRE-LIFT CHECKLIST**

- |  | YES                      | NO                       |
|--|--------------------------|--------------------------|
| 1. Matting acceptable?                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Outriggers fully extended?                          | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Crane in good condition?                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Swing room?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Head room checked?                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Max. counterweights used?                           | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Tag line used?                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Experienced operator?                               | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Experienced signaling/flagging person (designated)? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Load chart in crane?                               | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Wind conditions: _____ mph.                        |                          |                          |
| 12. Crane inspected by: _____                          |                          |                          |
| 13. Functional test of crane by: _____                 |                          |                          |

**SPECIAL INSTRUCTIONS OR RESTRICTIONS FOR CRANE, RIGGING, LIFT, ETC.**

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\*MULTIPLE CRANE LIFTS REQUIRE A SEPARATE LIFT PLAN FOR EACH CRANE.  
 \* ANY CHANGES IN THE CONFIGURATION OF THE CRANE, RIGGING, LIFTING SCHEME, ETC., OR CHANGES IN ANY OF THE CALCULATIONS REQUIRE THAT A NEW LIFT PLAN BE DEVELOPMED.

\_\_\_\_\_  
SIGNATURE OF JOB SUPT./SUPV.                      DATE

\_\_\_\_\_  
SIGNATURE – CHECKLIST REVIEWED BY                      DATE

\_\_\_\_\_  
SIGNATURE OF PROFESSIONAL ENGINEER (if applicable)

\_\_\_\_\_  
STATE & LICENSE



## Appendix E Daily Crane Inspection Report

1. Project # & Location: \_\_\_\_\_

2. Crane # & Make: \_\_\_\_\_ 4. Inspection Date: \_\_\_\_\_

- 1) Operator shall use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the Project or Site Supervisor immediately.
- 2) At the end of each week or end of crane use for the week, distribute as indicated below.

CODES: G = Good Condition N/A = Not Applicable NR = Need Repair M = Missing (needs replacement)

Daily Visual Checks		Date	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Comments (Date of repairs)
1	Broken or cracked glass									
2	Oil or coolant leakage									
3	Hydraulic fluid leakage									
4	Air system									
5	Load capacity chart									
6	Owner's manual									
7	Hand signal chart									
8	Boom angle indicator full range capacity									
9	Boom cable									
10	Load line									
11	Whip line									
12	Jib pendant lines									
13	Boom lacing/cords									
14	Load block & ball									
15	Crane hook-cracks and/or deformation									
16	Hook safety latches									
17	Boom hoist kickout									
18	Clutches									
19	Brakes									
20	Stops and bumpers									
21	Anti-two-blocking device									
22	Travel steering, braking and locking devices									
23	Telescope and/or hoist function									
24	Cribbing properly installed									
25	Crane setup within 1 degree level									
26	Carpenter's level for leveling crane									
27	Fire extinguisher (5 lb. ABC minimum)									
28	Area within swing radius of rotating structure barricaded									

Signature of operator inspecting lift:

Sun. \_\_\_\_\_  
 Mon. \_\_\_\_\_  
 Tues. \_\_\_\_\_  
 Wed. \_\_\_\_\_

Thur. \_\_\_\_\_  
 Fri. \_\_\_\_\_  
 Sat. \_\_\_\_\_

**COPY DISTRIBUTION:**

- 1 - Supervisor
- 2 - Equipment or Project File
- 3 - Crane Cab

**Appendix F**  
**Monthly Crane Inspection Report**

1. Project #/Location: \_\_\_\_\_ 2. Inspection Date: \_\_\_\_\_

3. Crane #: \_\_\_\_\_ 4. Engine Hours: \_\_\_\_\_

INSTRUCTIONS: 1) This report is to be completed at the end of each month. Operator shall use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the project manager or site supervisor immediately.

2) After completing the form, maintain one copy in the folder on the crane and return one copy to the applicable supervisor to be placed in the project or site equipment files.

CODES: G = Good Condition; N/A = Not Applicable; NR = Need Repair; M = Missing (needs replacement)

1. GENERAL

- Appearance
- Paint
- Cab (including housekeeping)
- Glass
- Grease/oil leaks
- Excessively worn or damaged tires

2. ENGINE

- Oil level and condition
- Hour meter
- Operating condition
- Cooling system
- Battery condition
- Air system
- Pressure
- Engine instruments
- All guards and chain covers in position

3. DRAW WORK (cable crane)

- Clutch
- Brake
- Pawl
- Swing shaft
- Clutches
- Brake
- Drum shaft
- Flanges – left hand
- Flanges – right hand
- Clutches – left hand
- Clutches – right hand
- Third drum
- Clutch
- Brake
- Control operation

4. UPPER WORKS (hydraulic crane)

- Boom hoist cylinders
- Boom hoist cylinder mounting
- Swing motor
- Swing gear assembly
- Swing brake
- Main hoist flanges
- Auxiliary hoist flanges
- Control operation

5. HYDRAULIC SYSTEM

- Hoses
- Lines
- Pumps
- Motors
- Fittings
- Hydraulic fluid level
- Leakage

6. TRACKS

- Chains
- Sprockets
- Idlers
- Pins
- Track adjustment
- Roller path
- Travel brake

7. CARRIER

- Tire condition
- Brakes
- Steering
- Outriggers
- Glass
- Controls
- Fire extinguisher (ABC minimum)

8. BOOM (cable crane)

- Cords (length of damaged section - \_\_\_\_\_)
- Lacing (length of damaged section - \_\_\_\_\_)
- Boom stops
- Automatic boom stops
- Automatic mast stop
- Gantry sheaves lubricated (sheave condition - \_\_\_\_\_)
- Load block (capacity - \_\_\_\_\_)
- Load block condition
- Hook condition (bent, cracked, etc.)
- Hook safety latch
- Jib condition (length - \_\_\_\_\_)
- Jib sheave axle lubricated
- Anti – two-blocking device

(continued on page 2)



## Appendix G Chain Fall Inspection Report

DATE: \_\_\_\_\_ EQUIPMENT ID: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_ CAPACITY: \_\_\_\_\_ TONS: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

LOCATION: \_\_\_\_\_

	OK	Repair	Replace	Lubricate	Adjust	Clean	Unsafe	N/A
<b>CHAIN FALL</b>								
Capacity Markings								
Gear case/reducer								
Guards and covers								
Hand chain								
Hand chain gear assembly								
Hardware								
Hoist operation								
Housekeeping								
Load block frame								
Load brake or clutch								
Load chain								
Load chain gear								
Load chain guide								
Load hook assembly								
Load hook safety latch								
Load hook swivel bearing								
Load test at 125% rated								
Steel frame condition								
Top hook assembly								
Top hook safety latch								
Top hook swivel bearing								
Warning tag								

ADDITIONAL COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

INSPECTOR: \_\_\_\_\_  
Signature of Inspector
Print Name

## Appendix H Powered Hoist Inspection Report

DATE: \_\_\_\_\_ EQUIPMENT ID: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_ CAPACITY: \_\_\_\_\_ TONS: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

LOCATION: \_\_\_\_\_

	OK	Repair	Replace	Lubricate	Adjust	Clean	Unsafe	N/A
<b>CHAIN FALL</b>								
2" Vert. 3" Hor. clearance								
Capacity markings								
Contractors								
Control station/pendant								
Fusing								
Gear case/oil level								
Guards and covers								
Hardware								
Hoist operation								
Housekeeping								
Load block frame								
Load block sheave								
Load brake or clutch								
Load hook assembly								
Load hook safety latch								
Load hook swivel bearing								
Lower limit switch								
Motor brake								
Motor(s)								
Overload protection								
Steel frame condition								
Top hook assembly								
Top hook safety latch								
Top hook swivel bearing								
U								
Warning Tag								

ADDITIONAL COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

INSPECTOR: \_\_\_\_\_  
Signature of Inspector
Print Name

# Cargo Securement

## Section 15.1

### Purpose

The Company has developed the following policy to ensure the safe and secure transportation of cargo with respect to the Federal Motor Carriers Safety Administration (FMCSA) requirements. Applicability of this program is defined in the General Requirements section below.

### References

FMCSA – Subpart I of Part 393

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Managers*

Shall assist Managers and Supervisors by providing technical assistance, resources, and training materials. They shall also periodically audit production and project locations for compliance with the program and report their findings to applicable managers.

#### *Employees*

Shall be responsible to understand the provisions of this program, their respective responsibilities, and accountability for their workplace actions.

### General Requirements

The general requirements of this section apply to all types of cargo except for commodities in bulk that lack structure or fixed shape, (e.g., liquids, gases, grain, liquid concrete, sand, gravel, aggregates) and are transported in a tank, hopper, box, or similar device that forms part of the structure of a commercial motor vehicle. The requirements of this section are as follows:

1. A commercial motor vehicle is not to be driven unless the load is properly distributed and adequately secured, and does not obscure the driver's view.
2. Cargo must be firmly secured using vehicle structures, dunnage, dunnage bags, shoring bars, tiedowns, or a combination of the above-mentioned.
3. Cargo that is likely to roll must be restrained by chocks, wedges, a cradle, or other equivalent means.
4. Articles or cargo placed adjacent to each other and secured by transverse tiedowns must either:
  - a. Be placed in direct contact with each other, or
  - b. Be prevented from shifting towards each other while in transit.
5. The minimum number of tiedowns required to secure an article(s) depends on the length of the article(s) being secured. When an article is not blocked or positioned by a headboard, bulkhead, other cargo, or other appropriate blocking devices, it must be secured by at least:
  - a. 1 tiedown for articles 5 feet or less in length, and 1,100 pounds or less in weight;
  - b. 2 tiedowns if the article is: 5 feet or less in length and more than 1,110 pounds in weight, or, longer than 5 feet but less than or equal to 10 feet in length, irrespective of the weight;
  - c. 2 tiedowns if the article is longer than 10 feet, and one additional tiedown for every 10 feet of article length, or fraction thereof, beyond the first 10 feet of length.
6. If an individual article is required to be blocked, braced, or immobilized to prevent movement in the forward direction by a headboard, bulkhead, other articles which are adequately secured, or by an appropriate blocking

# Cargo Securement

## Section 15.1

or immobilization method, it must be secured by at least one tiedown for every 10 feet of article length, or fraction thereof.

### Working Load Limits

The aggregate working load limit of any securement system must be at least  $\frac{1}{2}$  times the weight of the article(s) secured. The aggregate working load limit is the sum of:

1.  $\frac{1}{2}$  of the working load limit of each associated connector or attachment mechanism used to secure a part of the article of cargo to the vehicle; and
2.  $\frac{1}{2}$  of the working load limit for each end section of a tiedown that is attached to an anchor point.

The working load limits may be determined by using either the tiedown manufacturer's markings or by using the information in Appendix A of this section, Tiedown Specifications. The working load limits listed in the appendix are to be used when the tiedown material is not marked or otherwise identified by the manufacturer. When the values in the appendix and marked tiedowns differ, the marked value is to be used.

Tiedowns and associated connectors and mechanisms, except steel strapping, must allow for in-transit adjustment.

### Load Checks

The driver must examine the load and any load-securing devices within 50 miles of the start of the trip. The driver must examine the vehicle's cargo and load-securing devices periodically during the trip and make necessary adjustments to load-securing devices. Periodic examinations must be made:

1. When the driver makes a change of duty status,
2. After the vehicle has been driven for 3 hours, or

3. After the vehicle has been driven for 150 miles, whichever occurs first.

The driver is not required to check the cargo on a sealed load that is not to be opened, or if checking the cargo is impractical.

### Training

All applicable employees shall receive training on this program at the date of hire and periodically thereafter.

### Appendices

Appendix A – Working Load Limit (WLL) Tiedown Specification

## Appendix A Working Load Limit (WLL) Tiedown Specifications

<i>CHAIN</i>					
WLL in kg (pounds)					
Size mm (inches)	Grade 30 proof coil	Grade 43 high test	Grade 70 transport	Grade 80 alloy	Grade 100 alloy
7 (1/4)	580 (1,300)	1,180 (2,600)	1,430 (3,150)	1,570 (3,500)	1,950 (4,300)
8 (5/16)	860(1,900)	1,770(3,900)	2,130(4,700)	2,000(4,500)	2,600(5,700)
10 3/8)	1,200 (2,650)	2,450 (5,400)	2,990 (6,660)	3,200 (7,100)	4,000 (8,800)
11 (7/16)	1,690 (3,700)	3,270 (7,200)	3,970 (8,750)		
13 (1/2)	2,030 (4,500)	4,170 (9,200)	5,130 (11,300)	5,400 (12,000)	6,800 (15,000)
16 (5/8)	3,130 (6,900)	5,910 (13,000)	7,170 (15,800)	8,200 (18,100)	10,300 (22,600)
<i>Chain Marking Examples</i>					
Example 1	3	4	7	8	10
Example 2	30	43	70	80	100
Example 3	300	430	700	800	1000

<i>Synthetic Webbing</i>	
Width mm (inches)	WLL kg (pounds)
45 (1 3/4)	790 (1,750)
50 (2)	910 (2,000)
75 (3)	1,360 (3,000)
100 (4)	1,810 (4,000)

<i>Wire Rope (6 x 37, Fiber Core)</i>	
Diameter mm (inches)	WLL kg (pounds)
7 (1/4)	640 (1,400)
8 (5/16)	950 (2,100)
10 (3/8)	1,360 (3,000)
11 (7/16)	1,860 (4,100)
13 (1/2)	2,400 (5,300)
16 (5/8)	3,770 (8,300)
20 (3/4)	4,940 (10,900)
22 (7/8)	7,300 (16,100)
25 (1)	9,480 (20,900)

<i>Manilla Rope</i>	
Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	90 (205)
11 (7/16)	120 (265)
13 (1/2)	150 (315)
16 (5/8)	210 (465)
20 (3/4)	290 (640)
25 (1)	480 (1,050)

<i>Polypropylene Fiber Rope WLL 3 &amp; 8 Strand</i>	
Diameter mm (inches)	WLL kg (pounds)
10 (3/8)	180 (205)
11 (7/16)	240 (525)
13 (1/2)	280 (625)
16 (5/8)	420 (925)
20 (3/4)	580 (1,275)
25 (1)	950 (2,100)

**Appendix A**  
**Working Load Limit (WLL) Tiedown Specifications**  
**Page 2**

<i>Polyester Fiber Rope WLL 3 &amp; 8 Strand</i>	
<b>Diameter mm (inches)</b>	<b>WLL kg (pounds)</b>
10 (3/8)	250 (555)
11 (7/6)	340 (750)
13 (1/2)	440 (960)
16 (5/8)	680 (1,500)
20 (3/4)	850 (1,800)
25 (1)	1,500 (3,300)

<i>Nylon</i>	
<b>Diameter mm (inches)</b>	<b>WLL kg (pounds)</b>
10 (3/8)	130 (278)
11 (7/16)	190 (410)
13 (1/2)	240 (525)
16 (5/8)	420 (935)
20 (3/4)	640 (1,420)
25 (1)	1,140 (2,520)

<i>Double Braided Nylon Rope</i>	
<b>Diameter mm (inches)</b>	<b>WLL kg (pounds)</b>
10 (3/8)	150 (363)
11 (7/16)	230 (502)
13 (1/2)	300 (655)
16 (5/8)	510 (1,130)
20 (3/4)	830 (1,840)
25 (1)	1,470 (3,250)

<i>Steel Strapping</i>	
<b>Width x Thickness mm (inches)</b>	<b>WLL kg (pounds)</b>
31.7 x .74 ( 1 ¼ x .029)	540 (1,190)
31.7 x .79 (1 ¼ x .031)	540(1,190)
31.7 x .89 (1 ¼ x .035)	540(1,190)
31.7 x 1.12 (1 ¼ x .044)	770(1,690)
31.7 x 1.27 (1 ¼ x .05)	770(1,690)
31.7 x 1.5 (1 ¼ x .057)	870(1,925)
50.8 x 1.12 (2 x .044)	1,200(2,650)
50.8 x 1.27 (2 x .05)	1,200(2,650)

# Fleet Safety Policy

## Section 15.2

### Purpose

Employees are expected to operate vehicles safely in an effort to prevent accidents which may result in injuries and property loss. It is the policy of API to provide and maintain a safe working environment to protect our employees and the citizens of the communities where we conduct business from injury and property loss. The company considers the use of vehicles part of the working environment. The company is committed to promoting a heightened level of safety awareness and responsible driving behavior of its employees. Our efforts and the commitment of employees will offer assistance in the reduction of vehicle accidents and reduce personal injury and property loss claims. This program requires the full cooperation of each driver to operate their vehicle safely and to adhere to the responsibilities outlined in the Fleet Safety Policy. This policy applies to employees who operate vehicles on company business and will be reviewed by managers and supervisors to ensure full implementation and compliance.

### References

All FMCSR Regulations

### Responsibilities

#### *Manager / Supervisor*

Management is responsible for successful implementation and on-going execution of this program. Supervisors and employees are responsible for meeting and maintaining the standards set forth in this policy. The Fleet Policy Audit (Appendix D) should be used to assure compliance with the policy standards. Supervisors must investigate and report all accidents involving a motor vehicle used in performing company business within 24 hours and shall forward all accident reports to the division safety manager / risk management.

#### *Safety Manager*

The Risk Management Department in partnership with division safety managers is responsible for directing an aggressive vehicle safety program safety managers should:

1. Issue periodic reports of losses for the president's review.
2. Review motor vehicle accident records.
3. Distribute changes to the Fleet Safety Policy to managers, supervisors and drivers as necessary.
4. Maintain records.
5. Take action in managing high risk drivers as defined by this program.
6. Provide driver training either internally or through external means for high risk drivers.
7. Determine authorized vs. non-authorized driver.

### Program Elements

#### *Vehicle Assignment*

The manager of each operating office shall carry the responsibility for determining the type and specification of vehicle procurement and assignment to include, but not limited to: reason vehicle is needed, safety of the driver and or passengers, capacity and load requirements, cost and fuel economy.

#### *Authorized Driver*

Employees 18 years of age or older who have a valid driver's license for the type of vehicle they will operate, with an acceptable motor vehicle record (MVR) grade, and authorized by their supervisors will be permitted to operate a company vehicle. When the vehicle is driven for personal use, it must be authorized by the company Safety manager or company Fleet Manager. Only the employee will be permitted to operate the vehicle. No one under the age of 18 or anyone not previously approved by the safety manager will be permitted to operate the vehicle.

The only exception under this category will be in the case of an emergency in which the company-owned, leased, rented, or reimbursed vehicle is the sole means of emergency transportation. For such cases, an employee,

# Fleet Safety Policy

## Section 15.2

or other individual possessing a valid driver's license may operate such vehicle. Authorized driver provisions of this policy do not apply to company reimbursed vehicles operated outside of normal business hours, or when such vehicle is used for non-business activity.

### *Authorized Use of Vehicles*

Only those drivers who have an acceptable MVR grade will be allowed to drive for company business. (See Appendix A–MVR Grade Assessment Sheet for non DOT-regulated drivers and Appendix F for DOT regulated drivers)

Additionally, if unauthorized use results in an accident, the responsible employee may be subject to disciplinary action up to and including termination.

### *Department of Transportation (DOT) Regulated Vehicles*

Employees with appropriate commercial driver's license (if required by the state), authorization from their supervisor and qualified by State and Federal DOT, when applicable, will be permitted to operate the vehicle. Personal use is not allowed unless approved by management.

### *Personal Vehicles on Company Business*

Employees, who drive their personal vehicles on company business, including all employees who receive a car allowance, mileage or other compensation, are subject to the following requirements. The employee's regular business commute is exempt from this requirement.

1. Maintain auto liability insurance. Recommended minimum limits are \$100,000 for bodily injury and \$300,000 for property damage with combined single limit of \$300,000, however, state required limits are mandatory.
2. Maintain current state vehicle inspections when required.

3. Maintain personal vehicle in a safe operating condition when driven on company business.

The company is not responsible for payment or reimbursement of deductibles under personal automobile insurance policies. The company is also not responsible for any damages, payments, or other financial liability arising out of a motor vehicle accident, property damage, or injury to the general public with a company-reimbursed vehicle as the cost of personal automobile insurance has been factored into both company car allowance and or mileage reimbursements.

### *Rental Vehicles*

Rental vehicles will be leased from a nationally recognized rental car company designated by APi. Collision damage waiver is not necessary.

### *Contractors and Temporary Hire Employees*

Contractors and temporary employees will be treated as company employees and will comply with the requirements of this program. Failure to meet all requirements will result in the immediate loss of driving privileges.

### *Seat Belts and Occupant Restraints*

Proper use of occupant restraints, which include safety belts, has been clearly documented to save lives and/or reduce the severity of injuries. In some cases their use can prevent accidents by keeping the driver behind the steering wheel when evasive vehicle maneuvers are made.

APi recognizes that vehicle occupant restraints, such as safety belts and shoulder harnesses, are an important and effective item of personal protective equipment in a vehicle, that employees needlessly are injured and die due to failure to use the available occupant restraints, and that reduction of these injuries is important to all. Therefore, we are implementing the following vehicle occupant restraint policy:

# Fleet Safety Policy

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1. Available occupant restraints shall be used when operating any vehicle on company business.
2. This policy applies to all employees and to all occupants of vehicles being operated on company business, or company vehicles being driven for personal use.
3. Occupant restraint systems in all vehicles are to be maintained so that they are clean, easily accessible, and in good working order.

Information on the company's commitment to occupant restraint use shall be emphasized in employee orientation, driver training, employee handbooks, and safety rules.

### *Vehicle Operation*

All employees assigned a company vehicle shall operate that vehicle in a manner that will not discredit, jeopardize, or negatively affect the company. Employees are prohibited from altering or otherwise modifying company vehicles without the express consent from the applicable manager. Vehicles shall not be loaded in excess of their rated capacity. Assigned vehicles shall be returned in good condition and working order upon request, separation, and/or termination of employment. The company, at its discretion, may implement/use GPS technology in company vehicles. All employees operating a company owned vehicle shall adhere to the following operating requirements.

### *Cell Phone Use*

Using a cellular telephone while driving a motor vehicle puts the driver and others on the road at risk. Talking and/or texting on a cellular phone while operating a motor vehicle takes the driver's attention off the primary duty of driving.

APi requires all drivers who operate a motor vehicle on company business comply with all federal, state and local laws while using cellular phones. When placing or receiving a cellular telephone call, texting, or any use of a cellular telephone, pull out of traffic to a safe location.

### *Accident Recordkeeping & Reporting*

This company considers elimination of motor vehicle accidents as a major goal. To meet this objective, all accidents will be reported to management, investigated, documented and reviewed by the safety manager. The investigation identifies the need for:

1. A more intensive driver training and/or remedial training.
2. Improved driver selection procedures.
3. Improved vehicle inspection and/or maintenance activities.
4. Changes in traffic routes.

Motor vehicle accident recordkeeping procedures consist of the following components

1. Documentation of causes and corrective action.
2. Management review to expedite corrective action.
3. Analysis of accidents to determine trends, recurring problems and the need for further control measures.

### **Responsibility**

Implementation of these procedures remains the responsibility of both the driver and manager.

### *Driver*

Since the driver is the first person at the accident scene, he/she will initiate the information-gathering process as quickly and thoroughly as is feasible.

### *Supervisor and Safety Manager*

The safety manager will obtain accident data from the driver through the Vehicle Accident Report Form and/or by verbal communication. It is important for management to determine the extent of the accident, especially if it

# Fleet Safety Policy

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involves injury or death to the driver, passengers, or other parties. The safety manager will immediately proceed with a formal investigation to determine the underlying causes as well as what can be done to prevent similar occurrences. The accident report will be forwarded to APi Risk Management Department along with any additional support data (e.g., witness statements, photographs, police reports, etc.).

### *Management*

Management will review all accidents with the safety manager and participate in discussions regarding accident analysis, future prevention of similar accidents, policy violations, disciplinary action, training, etc.

### **Driver Accident Procedures**

Drivers will take the following actions in the event of an accident.

1. If possible, move the vehicle to a safe location out of the way of traffic. Call for medical attention if anyone is injured.
2. Immediately notify the safety manager of all incidents. If any injuries were involved and the safety manager is not available, contact your supervisor or APi Group Risk Management immediately.
3. Secure the names and addresses of drivers and occupants of any vehicles involved, their operator's license numbers, insurance company names and policy numbers, as well as the names and addresses of injured persons and witnesses.
4. Record this information on the Accident Report Form (in the reporting packet).
5. Do not discuss fault with, or sign anything for anyone, except an authorized representative of APi, a police officer, or a representative of APi's insurance company.
6. Take photos of the entire accident scene from multiple directions.

Note: Every company vehicle should have an accident reporting kit in the glove box. This should include an accident report form, pen or pencil, and an inexpensive or disposable camera.

### *Driver Training*

1. Drivers hired by this company to operate a motor vehicle will have the basic skills and credentials necessary to perform this function as confirmed through the driver selection process.
2. New employees and temporary hires, where applicable, will receive a copy of this program as part of their initial orientation. A formal orientation program has been established to help assure all drivers are presented with the company policy, understand their responsibilities, and are familiarized with their vehicle. Areas that must be addressed, with the driver, during such orientation include:
  - a) A review and understanding of the Vehicle Safety Program. A copy of the program is to be given to the driver.
  - b) Review of individual MVR.
  - c) Accident reporting & emergency procedures.
  - d) The operation and controls of vehicle being assigned.
  - e) Inspection of vehicle using the Vehicle Inspection Form.

### *License Suspension*

Drivers shall notify their department manager within 24 hours if their license is suspended or revoked. Failure to do so may result in disciplinary action including termination.

### *Remedial Training*

Drivers may be required to attend a safe driving school (drivinguniversity.com course or equivalent) or an alcohol/drug abuse program

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which may be on their own time and at their own expense if a review of the driver's MVR does not meet company standards.

### Drug and Alcohol Use

The company is firm in their belief that employees shall refrain from consuming alcohol and using illegal drugs or prescription medications that will inhibit their ability to drive safely. All authorized drivers shall not operate a company vehicle while his / her ability to do so has been impaired, diminished, or adversely affected by the use of the above-mentioned drugs. In addition, any authorized driver of a company-owned, leased, rented, or reimbursed vehicle cited and / or convicted for Driving While Intoxicated (DWI), Driving Under the Influence (DUI), and / or found to be in violation of this policy will be subject to disciplinary action and/or suspension of driving privileges. All authorized drivers have the responsibility to report either of these conditions to their applicable manager immediately. Failure to report such potential violations of this policy can result in suspension of driving privileges and / or disciplinary action up to and including termination.

Pursuant to the company's Substance Abuse Policy, effective 8/15/2011, any driver of a company-owned, leased, rented, or reimbursed vehicle that is directly or indirectly involved in a motor vehicle incident, regardless of fault, shall consent to a post-incident substance abuse test as soon as possible after the incident has occurred. This policy shall also apply to all employees who drive a company-owned vehicle for non-work related or personal use. The results of such tests will be reviewed with the applicable safety manager or authorized company representative to determine subsequent actions concurrent with the Substance Abuse Policy.

Employees that have violated the Company Substance Abuse Policy cannot be an authorized driver of a company-owned, leased, rented, or reimbursed vehicle until meeting the recommendations/conditions of the Substance Abuse Policy and the Company Fleet Policy.

### Evaluating MVR's

Driver selection and qualification is the foundation of an effective fleet safety program. Hiring a driver with a poor driving record can expose the company to severe liability and possible punitive damages. Court awards can exceed the limits of liability on an insurance policy, with the possibility of forcing a business out of operation. Every effort should be made to select only those candidates with driving records that meet specified standards.

A MVR evaluation program can aid in screening applicants and provide a basis for evaluating the driving performance of each company vehicle operator on a continuing basis. An effective program should be objective, unbiased, and have full management support. The requirements for such a program include developing objective standards that relate to driving safety and applying these standards consistently.

1. The company, at its expense, will conduct a MVR review on prospective job applicants as well as an annual review for current employees who either drive company vehicles or drive personal vehicles on company business.
2. The MVR review will assess the most recent three year driving history.
3. All applicable employees shall be required to read and sign a Disclosure and Authority to Release Information, *Appendix B* or state required release form. Refusal to sign this consent form shall result in suspension of driving privileges.
4. Only those employees who have and maintain an acceptable MVR record may operate a company vehicle or drive a personal vehicle for company business. The following are two distinct MVR assessments that must be used,
  - a) For those drivers operating vehicles that are non DOT Regulated. (vehicles under 10,001 lbs) the MVR Grade Assessment Sheet, *Appendix A* of this manual

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must be used. This MVR Grade Assessment Sheet provides an overview of the ranking system in correlation to an individual's driving history. The MVR review and subsequent ranking of an employee's driving record is conducted by a third party administrator.

- b) For drivers operating vehicles that are DOT regulated (vehicles over 10,001 lbs), the MVR Grade Assessment Sheet, *Appendix F* of this manual must be used.
5. A Driver Status Sheet, listed as *Appendix C* of this policy, shall be used for documenting all actions taken when an employee experiences a negative category change or as otherwise applicable. Once completed, a copy of this document shall be given to the employee. An additional copy will be placed in the employee's personnel file.
6. Drivers shall notify their department manager within 24 hours of any arrest or citation for a felony, reckless driving, or driving under the influence of drugs or alcohol. This applies to both on-duty and off-duty activities. Failure to make a timely report will be grounds for disciplinary action up to and including termination of employment.

### **DOT Regulated Vehicles 10,001 lbs - 26,000 lbs (GVW)**

#### *General Information*

The definition for a heavy-duty fleet is a fleet consisting of vehicles with gross vehicle weights (GVW) or gross combination weights (GCW) of 10,001 lbs and above. Vehicles meeting this criteria range from a standard truck to a combination of truck and trailer. All vehicles 10,001 lbs. GVW/GCW and above in interstate commerce are regulated by the DOT through the Federal Motor carrier Safety Regulations (FMCSR). Many states have adopted these regulations for vehicles involved in intrastate commerce only.

If a vehicle is less than 10,001 lbs. GVW/GCW, it is not subject to the FMCSR's unless:

1. The vehicle is designed to transport more than eight passengers (including the driver) for compensation; or
2. The vehicle is designed to transport more than fifteen passengers, including the driver and is not used to transport passengers for compensation; or
3. The vehicle is used in transportation of hazardous materials in a quantity requiring placarding under regulations issued under the Hazardous Materials Transportation Act.

The safety manager should be able to identify all vehicles in the fleet as the categories are applicable by:

1. Type of vehicle.
2. Whether interstate or intrastate.
3. Radius of operations.
4. GVWR or GCWR.
5. Quantity and type of hazardous materials.
6. Number of passengers transported.

Because most states have adopted most parts of the FMCSR, the safety manager must know the regulations of each state in which the company operates.

#### *DOT Identification Number*

If regulated vehicles are crossing state lines, the company must have a DOT Identification Number. The number can be requested by accessing the SAFER website ([safersys.org](http://safersys.org)) and completing the Motor Carrier Identification Report. In addition, the information must be updated every 24 months. All regulated vehicles must be marked as specified.

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### *Driver Selection and Qualification*

To assist the company in selecting the most qualified drivers from among the applicants and satisfy the requirements of federal and state department of transportation regulations, the driver selection process should include the following on all drivers operating commercial vehicles as defined in the FMCSR. Each manager has the responsibility to maintain qualification files for all drivers of regulated vehicles.

The FMCSR application procedures require specific actions by both the driver and the employer.

### **Driver Qualification Files**

Driver qualification files for all drivers must contain the following:

#### *Application for employment*

An application must be completed by each applicant who will drive a DOT regulated vehicle. In addition to the company Application for Employment, the Application in the J.J. Keller Driver Qualification File Folder must be completed. This is needed because the company form does not contain all the information required by the FMCSR.

#### *Motor Vehicle Record Investigation*

Within 30 days of employment, an inquiry must be made into the driving record of each driver for the past three years. The appropriate state agency must be contacted for each state in which the driver has held a vehicle operator's permit during the previous three years. The MVR received as a result of this inquiry must be a permanent part of the driver's qualification file. This form is in the Driver Qualification File Folder.

#### *Reference Checks*

Within 30 days after employment, an investigation must be made on each driver's employment record for the previous three years. The completed application form should be used to identify previous employers. If the information received differs significantly from

what is on the application for employment, clarification should be obtained from the driver. If you are satisfied with the driver's explanation, document the driver's explanation in the file. If the driver's explanation is unsatisfactory, appropriate corrective action should be taken or employment denied.

If previous employers fail to respond to requests for information, document the file stating the nature of the attempts to get information.

The forms are in the Driver Qualification File Folder.

#### *Annual Review of Driving Record*

A motor vehicle record should be requested for each driver every twelve months. This record, along with the driver's record of violations and any other record relating to the driving activities of a driver should be reviewed to determine if the driver meets the minimum company qualifications for safe driving. This review should be documented in the driver's qualification file. The forms are in the Driver Qualification File Folder.

#### *Driver's Record of Violations*

Each driver must complete a document listings all the violations of motor vehicle laws and ordinances, other than violations involving parking, for which the driver has been convicted or forfeited bond or collateral over the previous twelve months. This document should be reviewed by management, along with other appropriate records to determine the driver's eligibility to drive based on company standards. This document can be removed from the file after three years. The forms are in the Driver Qualification File Folder.

#### *Road Test*

All applicants should be given a road test in the type vehicle they will operate. Certificates of the road test must be completed, a copy given to the driver, and a copy placed in the driver's qualification file. Although in some cases the FMCSR permit an equivalent of the road test, it is a good fleet management practice to require

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a road test on a company vehicle conducted by a company employee.

The road test must be of sufficient duration to permit the evaluator to determine the overall skills of the operator in the type vehicles or vehicles that will be operated. The form is in the Driver Qualification File Folder.

### *Medical Examiners Certificate*

A DOT medical examination is required at the time of hire and every two years thereafter. The only document required in the file is a copy of the Medical Examiner's Certificate. The driver must carry a copy of the current certificate at all times he is operating a commercial vehicle. If the complete physical examination is maintained on file, it should be in a secure file with limited access. Medical examination records can be removed after three years. The form is in the Driver Qualification File Folder.

### **DOT Accident Reporting and Recordkeeping**

If the accident meets the DOT recordable definition, the accident should be recorded in a DOT Accident Register, *Appendix G*. The definition of a DOT recordable accident is an accident that involved any of the following:

1. A fatality.
2. Bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident.
3. Disabling damage to one or more motor vehicles, requiring the vehicle(s) to be towed or otherwise transported from the scene by a tow truck or other vehicle.

Companies are also required to maintain copies of all accident reports required by state or other governmental entities or insurers for a period of one year after an accident occurs.

### **Vehicle Inspection and Maintenance**

Each manager has the responsibility to designate personnel to monitor and facilitate

compliance with the regulations as listed in this policy.

If vehicle maintenance is provided by an outside service, including lease vehicles, the fleet manager must assure that all records and the service provided are in compliance with this policy.

### *Inspection Repair and Maintenance Records*

A file should be maintained on each vehicle, including trailers. The file should contain the following:

1. An identification of the vehicle, including company name, make, serial number, year, tire size, and GVWR. If the vehicle is not owned by the company, the record must show the name of the owner or provider.
2. A systematic method to show the type and due dates of the various levels of inspections and maintenance operations to be performed.
3. Records of inspections, repairs and maintenance showing date and type.

### *Driver's Daily Vehicle Inspection Report*

A driver's Daily Vehicle Inspection Checklist should be completed by each driver for each vehicle operated at the end of each driver's shift. The following procedures should be followed:

1. The driver should turn in the original copy of the completed report at the end of each driver's shift.
2. Management should review the completed report and place it in a file if no defects were noted.
3. If defects were noted, management should determine what repairs are required for safe operation of the vehicle, complete the repairs, and document the completed repairs on the original report.

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4. If repairs are not necessary for safe operation of the vehicle, this should be indicated on the report and place a copy of the completed report in the vehicle for review by the next driver.
5. If repairs are necessary for safe operation of the vehicle, the vehicle should be taken out of service immediately until the repairs are made. When the repairs are completed, the mechanic doing the repairs must document the repairs on the original copy of the report, as well as the copy in the vehicle.

Before driving a vehicle, each driver must review the last report. If defects were noted on the report, the driver must sign the report acknowledging that it was reviewed.

Each facility must retain original copies of all completed reports for at least three months from the date the report was prepared. The reports should be filed by vehicle number. The files should be checked monthly to assure that reports are being completed for each day a vehicle is used.

### *Cargo Securement*

Employees are responsible to ensure that all materials, equipment, tools, trailers, etc., are securely fastened to the vehicle to prevent them from becoming dislodged or thrown. The employee shall determine the best suitable method to secure all cargo for the task at hand. If employees are unsure of the best securement method, they should consult with their safety manager / supervisor. Additional information can be found in section 15.1 in this manual, titled Cargo Securement.

### *Vehicle Security*

It is the employee's responsibility to take adequate precautions to prevent theft and or vandalism to company vehicles. Wherever possible, employees should:

1. Always close all windows and lock the vehicle when possible.
2. Park in well-lighted or fenced areas. At

home, company vehicles should be locked and parked in either a driveway or garage.

3. Do not leave valuables in your vehicle. The company is not responsible for any personal items stolen from the company vehicle.
4. Do not leave your driver's license or motor vehicle registration in the vehicle. If the vehicle is stolen, a thief may use these documents to impersonate you.
5. Do not discuss the contents of the vehicle with non-company personnel.

### *Periodic Inspections*

Every vehicle that meets the definition of a commercial motor vehicle in the State or FMCSR must have an annual inspection. The annual inspection requirements can be met:

1. Through a periodic inspection program of a state approved program.
2. By a certified roadside inspection.
3. By an inspection performed by a certified garage.

The company must assure that the inspection of its vehicles is in compliance with FMCSR regulations. All inspectors must be qualified by virtue of training and/or experience.

Documentation of the most current inspection must be carried on the vehicle and the original of the inspection record must be kept on file for one year by the facility doing the inspection.

### **DOT Regulated Vehicles 26,001 lbs & Greater (GVW)**

#### *General Information*

Drivers who must have a commercial driver's license (CDL) must also be a part of a controlled substance and alcohol testing program. The definition of a commercial driver is any driver who operates a commercial vehicle in interstate or intrastate operations, where the vehicle:

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1. Has a gross combination weight rating of 26,001 or more pounds inclusive of a towed unit with a gross vehicle weight rating of 10,000 pounds, or;
2. Has a GVWR of 26,001 pounds or more, or;
3. Is designed to transport sixteen or more passengers, including the driver, or;
4. Any size vehicle transporting hazardous materials in amounts requiring placarding.

### *Commercial Driver's License*

If a driver drives a vehicle that meets the specifications above, the driver must have a CDL for the type vehicle he/she will operate.

### *New Drivers with Less Than One Year of Experience*

All drivers with less than one year of experience operating a commercial motor vehicle that are required to have a CDL must receive the following training:

1. Driver qualification requirements.
2. Hours of service requirements.
3. Driver wellness.
4. Whistle blower protection.

The driver should be issued a certificate of training and a copy of the certificate placed in the driver's qualification file.

### *DOT Controlled Substance and Alcohol Testing*

Drivers required to have a CDL must be in compliance with the company's controlled substance and alcohol testing requirements.

APi complies with these regulations by participation in a consortium that provides for pre-employment, random, reasonable suspicion, post-accident, return to duty, and follow-up testing. The forms provided by the

consortium must be completed when any DOT regulated driver who must have a CDL is hired.

### Employee Training

The company Substance Abuse Program Administrator will provide educational materials which explain the contents of the company policy. This includes a copy of the policy for each driver, training for supervisors, and referral procedures for evaluation and treatment.

**IMPORTANT NOTICE** – When making an employment decision based on results of the background check, you must follow the Fair Credit Reporting Act. Refer to The Criminal Policy section 3.4B Appendix E page 10.

### Appendices

Appendix A:

NON DOT - MVR Grade Assessment Sheet

Appendix B:

Disclosure and Authority to Release Information

Appendix C:

Driver Status Sheet

Appendix D:

Fleet Policy Audit

Appendix E:

Daily Vehicle Inspection Checklist

Appendix F:

DOT MVR Grade Assessment Sheet

Appendix G:

DOT Accident Register

## Appendix A

### MVR Grade Assessment Sheet Non- DOT

#### Grade I – Green

- Valid driver's license with no violations reported.

**REQUIRED ACTION:** None

#### Grade II - Blue

- Valid driver's license with one record for a moving violation.
- Valid driver's license with one to three records for a non-moving violation.

**REQUIRED ACTION:** Manager should provide copy of Fleet Policy to driver. Manager should explain consequences of subsequent violations.

#### Grade III – Yellow

- Valid driver's license with two or three records for moving violations.
- Valid driver's license with one to three records of accidents.
- Valid driver's license with four or more records for a non-moving violation.

**REQUIRED ACTION:** Manager should review policy and provide copy of Fleet Policy to driver. Manager should explain consequences of subsequent violations. Driver must attend company sponsored video or web-based driver safety training and submit documentation of successful completion to the applicable safety manager. Document on Driver Status Sheet.

#### Grade IV-Orange

- Valid driver's license with four or more moving violations or accidents.
- Valid driver's license but has experienced one or two records of suspension/revocation.
- Valid driver's license with one record of DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test.
- No proof of insurance

**REQUIRED ACTION:** Suspension of driving privileges for a minimum of 30 days and/or until such time individual has a clean three year driving history. Time of suspension is chosen at the discretion of applicable company manager, but will be minimum suspension period of 30 days. Manager should review policy and give copy to driver. Manager explains consequences of subsequent violations. Driver must attend driver safety training at own expense and time, and submit documentation of successful completion to the applicable safety manager. For DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test violation driver must also provide proof of drug and/or alcohol training course to applicable safety manager prior to driving privileges being reinstated. Document on Driver Status Sheet.

#### Grade V – Red

- Current driver's license is suspended or revoked.
- Valid driver's license with three or more suspensions/revocations.
- Valid driver's license with two or more convictions for DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test.
- Valid driver's license with a record for vehicular manslaughter.
- Valid driver's license with a record for a hit-and-run accident.
- Valid driver's license with an at fault accident recorded involving death.
- Felony or homicide record using a motor vehicle.

} Mandatory Revocation

**REQUIRED ACTION:** If driver has ability to reinstate invalids, suspended or revoked license, driver may have driving privileges reinstated after MVR comes back with grade lower than Red V. All other Red V drivers will have their company driving privileges revoked. Document on Driver Status Sheet.

#### NOTICES:

For the purposes of this policy, a valid driver's license has no restrictions whatsoever. An invalid license, also synonymous with limited, probationary, restricted, temporary, work permit is not considered a valid driver's license.

Any violation that could result in a classification of Grade III, Grade IV or Grade V must be reported to the company president or safety manager as soon as possible, but no more than before the end of the business day following the day that the employee/driver receives notification.





## Appendix D Fleet Policy Audit

Company: \_\_\_\_\_ Auditor: \_\_\_\_\_

Date of Audit: \_\_\_\_\_ Company Representative: \_\_\_\_\_

Circle Answer		<b>NON-DOT REGULATED VEHICLES</b>
		Passenger cars and trucks less than 10,001 lbs (GVWR/GCWR) * Remember to calculate the truck + trailer combination
Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	Grade II: Blue Employees - Policy is reviewed with drivers, consequences of subsequent violations are explained.
Y	N	Grade III: Yellow Employees - Policy is reviewed with drivers, consequences of subsequent violations are explained, drivers attended Company-sponsored Driver Safety Training and provide certificate of completion. Status is documented on Driver Status Sheet
Y	N	Grade IV: Orange Employees - Suspension of driving privileges for a minimum of 30 days and/or until such time individual has a clean three year driving history. Time of suspension is chosen at the discretion of applicable company manager, but will be minimum suspension period of 30 days. Manager should review policy and give copy to driver. Manager explains consequences of subsequent violations. Driver must attend driver safety training at own expense and time, and submit documentation of successful completion to the applicable safety manager.
Y	N	Grade V: Red Employee's - If driver has ability to reinstate invalids, suspended or revoked license, driver may have driving privileges reinstated after MVR comes back with grade lower than Red V. All other Red V drivers will have their company driving privileges revoked. Document on Driver Status Sheet
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 18
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
		Maintenance records are maintained for each vehicle. This file should contain:
Y	N	<input type="checkbox"/> Name of employee assigned to the vehicle
Y	N	<input type="checkbox"/> Identification of the vehicle that includes: Company number, make, serial number, year, and tire size
Y	N	<input type="checkbox"/> A systematic method to show due dates of the required maintenance
Y	N	<input type="checkbox"/> Records of maintenance showing the date and service provided
Y	N	<input type="checkbox"/> Records of repairs that are not scheduled
Y	N	<input type="checkbox"/> If the vehicle is not owned by the company, the name of the owner or lessee

## DOT REGULATED VEHICLES

Heavy-duty trucks between 10,001 lbs and 26,000 lbs (GVWR/GCWR)  
 \* Remember to calculate the truck + trailer combination

Circle  
Answer

Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	MVRs are checked for compliance to standards in the FMCSRs.
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 21
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
Y	N	A vehicle list has been developed and is kept updated that includes: whether the vehicle is interstate or intrastate, GVWR or GCWR, number of passengers transported
Y	N	All vehicles have a DOT Identification Number if crossing state lines(see specific state regulations)
Y	N	The Safety Fitness Rating has been calculated and documented (this can be done by going on <a href="http://safersys.org">safersys.org</a> and entering the DOT Identification Number)
		Driver Qualification Files for all drivers must contain the following:
Y	N	<input type="checkbox"/> Application for employment (if there is not one available, have employee fill out application and note that files are being updated and there was not an application in the file originally)
Y	N	<input type="checkbox"/> MVR check results
Y	N	<input type="checkbox"/> Reference checks - within 30 days after employment, an investigation must be made on each driver's employment record for the previous 3 years. If previous employers fail to respond to request for information, documentation is placed in the file stating the nature of the attempts to get the information. If the employee has been employed for more than 3 years, and reference checks were never performed, place a note in the file.
Y	N	<input type="checkbox"/> Annual review of driving record - annual MVR check
Y	N	<input type="checkbox"/> Driver's record of violations - drivers must complete a document listing all violations of motor vehicle laws and ordinances, other than violations involving parking, for which the driver has been convicted or forfeited bond or collateral over the previous 12 months. This document can be removed from the file after 3 years.
Y	N	<input type="checkbox"/> Road test - employees are given a road test in the type of vehicle they operate. Certificates of test must be completed, a copy given to driver, and a copy placed in file. Road test must include: pre-trip and post-trip inspections, coupling and uncoupling of combination units, placing vehicles in operation, use of vehicle controls and emergency equipment, operating the vehicle in traffic, turning, braking, backing and parking.
Y	N	<input type="checkbox"/> Medical examiners certificate - A DOT medical examination is required at the time of hire and every 2 years thereafter. The only document required in the file is a copy of the Medical Examiner's Certificate. The driver must carry a copy of the current certificate at all times they are operating a commercial vehicle. Medical examination records can be removed after 3 years.
Y	N	Driver's hours of service requirements are followed
Y	N	Daily Inspection Log is completed by driver

## DOT REGULATED VEHICLES

Heavy-duty trucks 26,001 lbs and greater (GVWR/GCWR)

\* Remember to calculate the truck + trailer combination

Circle  
Answer

Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	MVRs are checked for compliance to standards in the FMCSRs.
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 21
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
Y	N	A vehicle list has been developed and is kept updated that includes: whether the vehicle is interstate or intrastate, GVWR or GCWR, number of passengers transported
Y	N	All vehicles have a DOT Identification Number if crossing state lines(see specific state regulations)
Y	N	The Safety Fitness Rating has been calculated and documented (this can be done by going on <a href="http://safersys.org">safersys.org</a> and entering the DOT Identification Number)
		Driver Qualification Files for all drivers must contain the following:
Y	N	<input type="checkbox"/> Application for employment (if there is not one available, have employee fill out application and note that files are being updated and there was not an application in the file originally)
Y	N	<input type="checkbox"/> MVR check results
Y	N	<input type="checkbox"/> Reference checks - within 30 days after employment, an investigation must be made on each driver's employment record for the previous 3 years. If previous employers fail to respond to request for information, documentation is placed in the file stating the nature of the attempts to get the information. If the employee has been employed for more than 3 years, and reference checks were never performed, place a note in the file.
Y	N	<input type="checkbox"/> Annual review of driving record - annual MVR check
Y	N	<input type="checkbox"/> Driver's record of violations - drivers must complete a document listing all violations of motor vehicle laws and ordinances, other than violations involving parking, for which the driver has been convicted or forfeited bond or collateral over the previous 12 months. This document can be removed from the file after 3 years.
Y	N	<input type="checkbox"/> Road test - employees are given a road test in the type of vehicle they operate. Certificates of test must be completed, a copy given to driver, and a copy placed in file. Road test must include: pre-trip and post-trip inspections, coupling and uncoupling of combination units, placing vehicles in operation, use of vehicle controls and emergency equipment, operating the vehicle in traffic, turning, braking, backing and parking.
Y	N	<input type="checkbox"/> Medical examiners certificate - A DOT medical examination is required at the time of hire and every 2 years thereafter. The only document required in the file is a copy of the Medical Examiner's Certificate. The driver must carry a copy of the current certificate at all times they are operating a commercial vehicle. Medical examination records can be removed after 3 years.
Y	N	Driver's hours of service requirements are followed
Y	N	Drivers have commercial driver's licenses (CDL) for the type of vehicle they will operate
Y	N	Drivers with less than 1 year experience operating a commercial motor vehicle that are required to have a CDL must receive the following training: driver qualification requirements, hours of service requirements, driver wellness, whistle blower protection. The driver should be issued a certificate of training and a copy of the certificate place in the driver's qualification file.
Y	N	Drivers subject to CDL standards are in compliance with the controlled substance and alcohol testing requirements
Y	N	Annual DOT inspection performed at DOT approved site

## Appendix E

### Daily Vehicle Inspection Checklist Required for Vehicles above 10,000 lbs (or truck + trailer combinations over 10,000 lbs total)

Driver Name \_\_\_\_\_ Vehicle Number/Tag \_\_\_\_\_ Date \_\_\_\_\_

**Check to following items and report any defects to a mechanic.**

	YES	NO	Comments
Backup Lights			
Battery			
Belts/Hoses			
Brakes (Pedal pressure)			
Emergency Flashers			
Emergency Warning Triangles (3)			
Fire Extinguisher (5#, Secured)			
Fluid Levels: oil, transmission, brake, radiator/cooling system			
Headlights			
Horn			
Instrument Panel			
Load tools, materials secured and/or stowed away			
Steering/Alignment			
Tail Lights			
Tires/Pressure			
Turn Signals			
Visible Fluid Leaks			
Windshield/Wiper Blades/Fluid			

<b>If equipped with trailer:</b>	YES	NO	Comments
Brakes, if Equipped			
Cargo Secured			
Electrical/Mechanical Connections			
Lights/Marker Lamps			
Springs			
Straps/Tie Downs			
Tires/Pressure			
Trailer Integrity(floor)			

Driver Reporting Defects: \_\_\_\_\_

Defects reported have been corrected or do not affect the safe operation of the vehicle.

Manager/Mechanic: \_\_\_\_\_

Driver reviewing report the next shift/day: \_\_\_\_\_ Date: \_\_\_\_\_

**Note:** This checklist is not intended to replace extensive mechanical inspections. The Vehicle Operator is responsible for the safe operation of his/her vehicle. This checklist describes the general operating condition of the vehicle surveyed at the time and date indicated above. Upon completion please submit to your immediate supervisor for documentation and/or corrective action.

## Appendix F MVR Grade Assessment Sheet DOT

### Grade I - Green

- Only employees with a Valid Driver's License with no violations reported.

**REQUIRED ACTION:** None

### Grade II - Yellow

- Record of any Warrant Found.
- Record of driving the wrong way on a Divided Highway
- Failure to stop at accident causing property damage
- Failure to stop at the scene of an accident (Hit & Run)
- Licensed less than 3 years or State does not provide date of issuance

**REQUIRED ACTION:** Depending on the offense(s), the employee will be disqualified from driving a Commercial Vehicle until after meeting the required suspension period in accordance with the FMCSA. Reference: Regulation 383.51 Driver Disqualifications and Penalties, Subpart D Table 2.

### Grade III - Red

- Current Driver's License is Suspended or Revoked.
- One record for DWI/DUI or being under the influence of a controlled substance within the last year.
- Refusing to take an alcohol test as required by state or jurisdiction.
- Record of reckless driving within the past 3 years.
- Record of speeding over 20 mph of the posted speed or the range includes 21 mph or higher speeds within the past 3 years.
- Record of speeding over 100 mph within the past 3 years
- Record of speed contest within the past 3 years
- Record of exhibition speed in the past 3 years
- Record of transporting Explosives without special license within the past 3 years
- Record for evading a police officer causing injury of death in the past 3 years.
- Records of two or more chargeable accidents within the past 3 years.
- Records of three or more moving violations or accidents or combination thereof.
- Drivers under the age of 21.
- Drivers over the age of 65.
- Second conviction of leaving the scene of an accident within the past three years
- Conviction of having an alcohol concentration of .04 or greater while operating a commercial motor vehicle
- Using the vehicle to commit a felony
- Causing a fatality through the negligent operation of a commercial vehicle
- Second conviction of making improper or erratic lane changes within the past three years
- Second conviction of following the vehicle ahead too closely within the past three years
- Second conviction of he vehicle ahead too closely within the past three years
- Second conviction of violations of State or local law relating to motor vehicle traffic controls within the past three years

**REQUIRED ACTION:** Depending on the offense(s), the employee will not be allowed to drive a Commercial Vehicle until after meeting the required disqualification period in accordance with the FMCSA. Reference: Regulation 383.51 Driver Disqualifications and Penalties Subpart D Table 1.

**NOTIFICATION:** Any violation that could result in a classification of grade II or Grade III, must be reported to the Company President or Safety Manager as soon as possible, but no more than before the end of the business day following the day that the employee/driver receives notification.



# Fork Trucks

## Section 15.3

### Purpose

The Company has established the following program to promote safe work practices and operation of Fork Trucks at fixed facilities and Company Projects. For the purposes of this program, Fork Trucks can be synonymous with Fork Lifts, Lift Trucks, and Powered Industrial Trucks.

### References

OSHA 1926.602, 1910.178

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing training of employees, resource materials, and technical assistance as necessary in support of this program. This individual shall also periodically audit fixed facilities and Company projects to evaluate Operators and report any deficiencies to the appropriate personnel.

#### *Employee*

Shall understand the safe work practices and expectations associated with fork truck usage and be accountable for their workplace actions.

### General Requirements

1. All new fork trucks acquired and used by the Company shall meet the design and construction requirements for powered industrial trucks established in ANSI B56.1.
2. Fork trucks shall bear a label or other identification, which indicates approval or acceptance by a recognized testing laboratory.

3. Modifications or alterations that affect capacity or safe operation shall not be performed by the customer without the manufacturer's express, written consent.
4. If the fork truck is equipped with front-end attachments other than the factory installed attachments, it shall be labeled to identify the approximate weight of the fork truck and attachment combination at maximum elevation with load centered.
5. All nameplates, capacity charts, and warning signage on fork trucks shall be maintained in a legible condition.
6. Fork Trucks shall be evaluated for their use and selected based on their designation rating for the environment in which they will operate.
7. Only trained and authorized personnel shall be permitted to operate fork trucks.
8. If at any time the fork truck is found to be in need of repair, is considered defective, or in any way unsafe, it shall be removed from service until it has been restored to a safe operating condition.

### Fork Truck Operation

1. Personnel shall not stand or pass under the elevated portion of any fork truck, whether loaded or empty.
2. Personnel shall not be permitted to ride on fork trucks as passengers.
3. The operator shall keep all extremities inside the confines of the cab at all times during operation.
4. When a fork truck is left unattended, the load or carriage shall be fully lowered, controls neutralized, power shut off, and the brakes set. Wheels shall be chocked if the fork truck is on an incline. By definition, a fork truck is considered unattended when the operator is 25 feet or more away from the vehicle which remains in their view, or whenever the operator leaves the vehicle and it is not in their view.

# Fork Trucks

## Section 15.3

5. Operators must maintain a safe distance from the edge of platforms, ramps, or other changes in elevation.
6. Care and awareness of overhead obstructions such as lighting, piping, sprinkler systems, roof elevation changes shall be observed at all times.
7. An overhead guard shall be used as protection against falling objects such as bags, boxes, or small packages, but not to withstand the impact of a falling capacity load.
8. A load backrest extension shall be used whenever necessary to minimize the possibility of a falling load.
9. Approved personnel work platforms utilized in combination with fork trucks shall be or have:
  - a. Secured to the carriage and / or forks,
  - b. A means provided whereby personnel on the platform can shut off the power to the fork truck,
  - c. Have a standard handrail system or a full body harness and lanyard utilized as the fall prevention method,
  - d. Have a qualified operator at the controls at all times when an employee occupies the work platform.
4. Loads shall be carried and moved with the forks and or carriage in the lowest possible position.
5. Loads shall be tilted back when feasible whenever operating on an uphill or downhill grade.
6. Stunt driving or horseplay is strictly prohibited.
7. Dockboards or bridgeplates shall be properly secured to prevent unwanted movement.
8. Operators shall travel and navigate their movements at speeds that are considered safe for the conditions.

### Re-Fueling

As with any fuel, consideration must be given to assure that heat and other sources of ignition have been removed from re-fueling locations. The following safe work practices have been established for the identified fuels.

#### *Liquefied Petroleum Gas (LPG)*

LPG cylinders can be very dangerous when exposed to severe temperature changes. Storage and re-fueling locations shall be evaluated to properly identify locations with respect to extreme temperature considerations. In addition, the following rules shall be observed:

### Fork Truck Travel

1. The operator shall slow down and sound the horn at cross aisles and other locations where vision is obstructed. If a load obstructs the operator's view, then he / she shall travel with the load trailing.
2. Railroad tracks shall be crossed diagonally wherever possible. 8 feet of safe clearance must be maintained if parking adjacent to railroad tracks.
3. All operators shall look in the direction of travel.
1. Cylinders shall be secured to the fork truck with the positioning pin located in the hole of the cylinder guard to prevent movement.
2. Cylinder straps shall be in good condition and fully latched to before moving the fork truck.
3. Gas valves shall be shut off when parking the unit for extended periods, e.g. lunch breaks, overnight. Allow engine to consume fuel remaining in line upon closing isolation valve.

# Fork Trucks

## Section 15.3

### *Gasoline & Diesel Fuels*

1. Bond hose to equipment by placing metal nozzle in contact with the filler neck.
2. Fill tank to just below the bottom of the filler neck tube to avoid overfilling.
3. Wipe up spills prior to starting engine.

### *Battery Powered Equipment*

Battery charging and changing areas shall be located in areas designated for that purpose. In addition, the following requirements must be observed:

1. Battery charging areas must be well ventilated to prevent the accumulation of Hydrogen gas.
2. Follow manufacturer's recommendations for venting battery caps and connections.
3. Personal Protective Equipment (PPE) may be required when exposed to uncovered batteries during connection, handling, and charging periods, and may require the use of:
  - a. Face Shields and / or goggles
  - b. Aprons
  - c. Rubber Gloves
4. Emergency eyewash and / or showers, or other equivalent means, must be within 25 feet of the battery charging area.

### **Maintenance and Inspections**

#### *Maintenance*

All maintenance of fork trucks shall be performed in accordance with the manufacturer's recommendations and maintenance schedules.

### *Inspections*

A daily inspection is required by the first operator who will occupy or otherwise operate the equipment. This visual inspection can be documented on the attached Fork Truck Inspection form, listed as *Appendix A* of this section.

A monthly inspection is required to be documented and maintained in the permanent equipment file. A trained operator or supervisor shall perform this inspection. This can be performed on the Company or Manufacturer's form.

Annual inspections are required and shall be conducted by an authorized service center, or equivalent inspection facility, with copies maintained in the permanent equipment file.

All inspections shall be placed in the permanent equipment file and maintained for the period in which the Company owns, leases or rents the equipment.

### **Training**

Each employee that will be required to operate a fork truck shall receive training prior to the commencement of work activities. Initial training shall consist of, but not limited to:

1. A review of the manufacturer's safe use instructions and recommendations.
2. All operational features of the equipment.
3. Capacity, performance, and functional limitations.
4. The use of attachments and affect on capacity.
5. Anticipated loads, safe handling, and maneuvering.
6. Workplace conditions that can affect fork truck use.
7. Required inspections and maintenance issues.

# Fork Trucks

## Section 15.3

8. Any other relevant warnings or precautions listed in the Operator's Manual for the types of equipment the employee will be trained to operate.

The training above-mentioned shall include a combination of formal instruction, practical training, and an evaluation of the operator's performance in the workplace by a qualified instructor. Refer to *Appendix C*, Fork Truck Operator Evaluation, to document operator evaluation.

Refresher training shall be conducted whenever:

1. The operator has been observed to operate the equipment in an unsafe manner,
2. The operator has been involved in an accident or near-miss incident,
3. The operator has received an evaluation that reveals he / she is not operating the equipment in accordance with safe work practices,
4. The operator is assigned to operate a different piece of equipment,
5. A condition in the workplace changes in that can affect the safe operation of the equipment.
6. In addition to items 1-5, each fork truck operator's workplace performance shall be evaluated at least once every 3 years. All training concurrent with this section shall be documented on the Operator Training form, listed as *Appendix B & C* of this section.

### Appendices

Appendix A – Fork Truck Daily Inspection

Appendix B – Operator Training

Appendix C – Fork Truck Operator Evaluation

## Appendix A Fork Truck Daily Inspection

<b>Fuel Type:</b>	
LPG	<input type="checkbox"/>
Gasoline	<input type="checkbox"/>
Diesel	<input type="checkbox"/>
Electric	<input type="checkbox"/>

**Location:** \_\_\_\_\_

**Vehicle, Make:** \_\_\_\_\_

**Week of:** \_\_\_\_\_

✓ = **Satisfactory**

✗ = **Unsatisfactory**

n/a = **Not applicable**

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Fuel Level							
Water							
Engine Oil							
Hydraulic Oil							
Horn							
Brakes							
Tires							
Operator Training							
Hoist Cylinder							
Tilt Cylinder							
Air Cleanser							
Oil Pressure							
Forks							
Battery							
Fire Extinguisher							
Warning Device: Audible							

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Inspection by:** \_\_\_\_\_ *Signature*      \_\_\_\_\_ *Print Name*

**Date:** \_\_\_\_\_



## Appendix C Fork Truck Operator Evaluation

**Trainee Name:** \_\_\_\_\_

**Test Date:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Vehicle, Make:** \_\_\_\_\_

**Truck Type:**  Sit Down     Stand Up

**Fuel Type:**  LPG         Gasoline     Diesel     Electric

	Pass	Fail		Pass	Fail
1-8. Physical examination of lift truck: (Operator must perform and describe inspection of each item)			13. Did the operator raise or tilt the load properly?	<input type="checkbox"/>	<input type="checkbox"/>
1. Tilt	<input type="checkbox"/>	<input type="checkbox"/>	14. Did the truck strike anything while moving the pallet?	<input type="checkbox"/>	<input type="checkbox"/>
2. Raise/Lower	<input type="checkbox"/>	<input type="checkbox"/>	15. Did the operator lower the pallet before moving/backing out?	<input type="checkbox"/>	<input type="checkbox"/>
3. Horn	<input type="checkbox"/>	<input type="checkbox"/>	16. Did the operator drive at a safe rate of speed?	<input type="checkbox"/>	<input type="checkbox"/>
4. Tires	<input type="checkbox"/>	<input type="checkbox"/>	17. Did the operator slow down or stop at cross aisles?	<input type="checkbox"/>	<input type="checkbox"/>
5. Oil Leaks	<input type="checkbox"/>	<input type="checkbox"/>	18. Did they sound the horn?	<input type="checkbox"/>	<input type="checkbox"/>
6. Mast Chains	<input type="checkbox"/>	<input type="checkbox"/>	19. When returning pallet, did they properly pull into rack?	<input type="checkbox"/>	<input type="checkbox"/>
7. Brakes	<input type="checkbox"/>	<input type="checkbox"/>	20. Were any racks struck while replacing pallet?	<input type="checkbox"/>	<input type="checkbox"/>
8. Hour Meter	<input type="checkbox"/>	<input type="checkbox"/>	21. Did the operator back out and lower the forks before moving?	<input type="checkbox"/>	<input type="checkbox"/>
9. Ask the operator for 3 safety rules to follow at a loading/receiving dock.	<input type="checkbox"/>	<input type="checkbox"/>	22. Did the operator always look behind before backing up?	<input type="checkbox"/>	<input type="checkbox"/>
• Chock Wheels			23. Did the operator wear protective equipment?	<input type="checkbox"/>	<input type="checkbox"/>
• Wear Equipment			24. Did the operator set the load flat on the floor before getting off?	<input type="checkbox"/>	<input type="checkbox"/>
• Watch for others			25. Did the operator make any moves that were potentially dangerous?	<input type="checkbox"/>	<input type="checkbox"/>
• Hold Handrail					
• Operator Safety					
• Proper Lifting					
• Warn others					
• Other					
10. Ask the operator for 4 safety rules to follow at the battery charging stations.	<input type="checkbox"/>	<input type="checkbox"/>			
• Proper Equipment					
• Proper plug/unplug					
• No smoking					
• Clean-up Procedures					
• Eyewash station					
• Other					
11. Did the operator pull forward toward designated section of racking without striking anything?	<input type="checkbox"/>	<input type="checkbox"/>			
12. Did the operator place the forks under the pallet properly?	<input type="checkbox"/>	<input type="checkbox"/>			
			<b>TOTAL POINTS:</b> _____ / _____		

**Trainer/Supervisor:** \_\_\_\_\_ **Date:** \_\_\_\_\_

# Excavation / Trenching

## Section 16.1

### Purpose

The Company has developed the following policy and associated safe work practices for the protection of employees, the employees of others, and company assets.

### References

OSHA 1926.650

### Responsibilities

#### *Managers / Supervisors*

Shall ensure that excavation and trenching work performed by employees and subcontractors under their control is in accordance with the provisions of this program. Managers / Supervisors, or their designee, shall serve as the competent person while employees work in or adjacent to an excavation / trench. This individual shall also be responsible for:

1. Holding a pre-entry orientation for all employees.
2. Identifying and understanding the scope of work.
3. Recognizing anticipated hazards and implement controls as applicable.
4. Assuring that emergency procedures have been established for the work.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing applicable employee training, technical assistance, and other resources. The Safety Manager shall also periodically audit projects to ensure that the program is being followed. This individual shall communicate any deficiencies to the Job Superintendent at the time of observation and establish corrective action immediately.

#### *Employee*

Shall be responsible for understanding their responsibilities with respect to this program and accountable for their workplace actions.

### Definitions

#### *Accepted Engineering Practices*

Procedures compatible with the standards of practice required of a registered professional engineer.

#### *Benching*

A method of protecting employees from cave-ins by excavating the sides of an excavation to form a series of horizontal levels or steps, usually with vertical or near vertical sides surfaces between levels. Benching is only allowed in Type A or B soils.

#### *Competent Person*

An individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, dangerous to employees, and whom has the authorization to take prompt corrective measures to eliminate or control hazards and conditions.

#### *Confined Space*

Is a space that, by design and / or configuration has limited openings for entry and exit, unfavorable natural ventilation, may contain, or produce hazardous substance, and is not intended for continuous employee occupancy.

#### *Excavation*

An **Excavation** is a man-made cut, cavity, trench, or depression in an earth surface that is formed by earth removal. A **Trench** is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, and the width (measured at the bottom) is not greater than 15 ft. If a form or other structure installed or constructed in an excavation reduces the distance between the form and the side of the excavation to 15 ft. or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

# Excavation / Trenching

## Section 16.1

### *Hazardous atmosphere*

An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic or otherwise harmful and capable of causing death, illness, or injury to persons exposed to it.

### *Ingress and Egress*

Defines “entry” and “exit”, respectively. In trenching and excavation operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.

### *Protective System*

Refers to the method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems capable of providing the required protection.

### *Registered Professional Engineer*

An individual who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer who is registered in any state is deemed to be a “registered professional engineer” within the meaning of OSHA’s Subpart P when approving designs for “manufactured protective systems” or “tabulated data” to be used in interstate commerce.

### *Shield System*

Refers to a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect personnel within the structure. Shields can be permanent structures or can be portable and moved along as the work progresses. Shields used in trenches are usually referred to as “trench boxes”.

### *Shoring System*

Refers to structures such as hydraulic, mechanical, or timber shoring systems that support the sides of an excavation or trench.

### *Sloping System*

A method of protecting employees from cave-ins by excavating the sides of an excavation at varying angles away from the excavation dependant upon the soil type, environmental conditions of exposure, and the application of surcharge loads.

### *Surcharge Loads*

Additional loading placed on or adjacent to the top of an excavation sidewall. Examples of such loads are those imposed by backhoes, cranes, other vehicle traffic, and excavated soil (spoils).

### *Support System*

Refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.

### *Surcharge*

Means an excessive vertical load or weight caused by a spoil, overburden, vehicles, equipment, or activities that may affect trench stability.

### *Tabulated Data*

Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

### *Underground Installations*

Include, but are not limited to, utilities (sewer, telephone, fuel, electric, water, and other product lines), tunnels, shafts, vaults, foundations, and other underground fixtures or equipment that may be encountered during excavation or trenching work.

# Excavation / Trenching

## Section 16.1

### General Requirements

#### *Underground Installations*

1. For excavation or trench work at an Owner's facilities, the Superintendent or their designee shall coordinate the work by:
  - a. Contacting the Owner's representative at least 24 hours in advance of the work.
  - b. Contact Digger's Hotline directly, or through Owner's Representative at least 24 hours in advance of the scheduled work, or as local ordinances require otherwise.
  - c. Request and maintain a copy or document the reference I.D. number provided by the issuing agency for the excavation or trench.
  - d. Arrange for the Owner's Representative to assist in locating and isolating energy sources prior to digging.
2. For excavation or trench work in a Right of Way or on public or municipal property, the Superintendent or their designee shall coordinate such work by:
  - a. Contact Digger's Hotline directly at least 24 hours in advance of the scheduled work, or as local ordinances require otherwise.
  - b. Request and maintain a copy or document the reference I.D. number provided by the issuing agency for the excavation or trench.
  - c. Assist utility companies and other applicable personnel by communicating the scope and duration of the work.
  - d. Excavation or trench work that proceeds without a response from a representative from a utility owner shall only be performed if:
    - i. Electronic detection equipment is utilized to locate underground installations, and
    - ii. The excavation or trench work is performed manually (hand-digging) for locating the exact position for a buried obstacle.
3. For open excavations, the Superintendent or their designee shall assure:
  - a. Underground systems or lines are protected, supported, or removed to protect employees entering excavations.
  - b. Energized lines and / or systems are structurally protected from physical damage due to the excavation, work process, or backfilling operations.
4. Employees **shall never** disconnect, sever, or disengage a Utility Owner's line or system. This includes abandoned lines or systems as well. If a line or system is to be taken out of service or removed from service, the Utility Owner or their designee shall take such action.
5. Utility Owner's use specific color codes to delineate various types of underground utilities. Those color codes, as identified by the American Public Works Association (APWA) is provided in *Appendix A* of this section for referral.
6. An Excavation Permit, shown as *Appendix B* of this policy, shall be completed prior to all excavation or trenching activities by the superintendent or their designee. It shall serve as a guide to safely create the excavation or trench & to satisfactorily protect employees, equipment and other assets while work is being completed. A new permit should be completed whenever conditions change.

#### *Access and Egress*

Trench excavations greater than 4 ft. in depth require a means of access and egress through the use of:

1. Stairways
2. Ladders, or

# Excavation / Trenching

## Section 16.1

### 3. Ramps

If structural ramps are to be used as an access and egress method, they shall be designed and constructed in accordance with specifications issued and signed by a registered professional engineer. Regardless of the access and egress method chosen, it shall be so located as to not require more than 25 feet of lateral travel for employees.

#### *Vehicle Traffic*

Employees exposed to vehicle traffic must be provided and wear high visibility vests meeting applicable ANSI requirements.

#### *Falling Materials*

Employees are not permitted to work underneath overhead loads handled by lifting or digging equipment. Employees shall stand a safe distance away from any vehicle being loaded or unloaded to avoid being struck by spillage or falling materials.

#### *Protective Warning Systems for Mobile Equipment, Employees and the General Public*

1. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation and the operator does not have a clear and direct view of the excavation, a warning system shall be utilized such as barricades, hand or mechanical systems, or stop logs. If possible, the adjacent grade around an excavation or trench shall be sloped away.
2. If the edge of an excavation or trench presents a fall hazard of 6' or greater to employees, employees of others, or the general public, a standard handrail system or other similar barricade shall be installed to eliminate the fall hazard.
3. Any excavation or trench that presents injury to the public and other individuals or presents an opportunity for motor vehicle damage if left open until the next shift or day, shall be protected by a barricade or other suitable method that prevents entry. In dimly

lighted areas, the excavation or trench perimeter shall be outfitted with temporary lighting, which promotes high visibility. Warning signs shall also be posted periodically on the perimeter of the trench or excavation stating "Danger – Do Not Enter" or "Danger - No Unauthorized Entry".

#### *Hazardous Atmospheres*

For trenches and excavations greater than 4 ft. in depth, the following requirements shall be followed prior to employee entry:

1. Atmospheric testing shall be conducted by a competent person and documented on the Excavation Log, listed as *Appendix C* of this section. This testing shall include air monitoring for oxygen deficiency and flammable gases at a minimum.
2. Air monitoring shall be conducted more often than initial entry should work conditions change and it can be reasonable expected that air quality could change.
3. Emergency rescue equipment shall be made available immediately adjacent to the excavation or trench where hazardous atmospheric conditions exist or can be reasonably be expected to develop.

#### *Water Accumulation Hazards*

Excavations where water accumulates shall be considered as an excavation meeting the definition of Type C soil composition (See Soil Composition Section). Employees are not to enter or perform work unless adequate precautionary measures have been implemented, which can include:

1. Special support or shield systems that will prevent cave-ins.
2. Dewatering efforts such as pumps that effectively control water accumulation.
3. The use of a safety harness and lifeline.

If water is controlled or prevented from accumulating by the use of dewatering equipment, such equipment shall be monitored

# Excavation / Trenching

## Section 16.1

by a competent person to ensure proper operation.

Where excavation interrupts the natural drainage of surface water, diversion ditches or other effective means must be used.

### *Adjacent Structures*

Excavations 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 must not be permitted except when:

1. A support system such as underpinning is provided to ensure the safety of employees and the stability of the structure, or:
  - a. The excavation is in stable rock, or
  - b. A registered professional engineer has the determination that the structure is far enough away from the excavation activity, or
  - c. A registered professional engineer has determined the excavating will not present a hazard to employees.
2. Sidewalks, pavements and other structures are not to be undermined. A support system or other method of protection must be provided to protect employees and the general public from possible collapses into the excavation.

### *Inspections*

The competent person shall conduct daily inspections of the excavation or trench and document the results of such inspection on the Excavation Permit listed in this section. These documented inspections may be required more often than daily as conditions warrant. If the competent person finds evidence of a potential cave-in or other hazardous conditions, he shall immediately remove all exposed employees from the excavation until the situation has been corrected.

### *Spoils*

All excavated earth (spoil) must be placed no closer than 2 ft. from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. The distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

### **Soil Classification**

OSHA categorizes soil and rock deposits into four types; Stable Rock and Types A through C. These categories, by definition, are listed below:

#### *Stable Rock*

Is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually defined by a rock name such as granite or sandstone. Determining whether a deposit of this type may be difficult unless it is known whether cracks exist and whether or not the cracks into or away from the excavation.

#### *Type A Soils*

Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot or greater. Examples of Type A cohesive soils are often clay, silty clay, sandy clay, clay loam, and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has been previously disturbed, is part of a sloped, layered system where the layers dip the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater, or has seeping water.

#### *Type B Soils*

Cohesive soils with an unconfined compressive strength greater than .5 tsf; or granular cohesionless soils including: angular gravel, silt, silt loam; previously disturbed soils unless otherwise classified as Type C soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock, or; material that is part of a sloped, layered system

# Excavation / Trenching

## Section 16.1

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.

### *Type C Soils*

Cohesive soils with an unconfined compressive strength of .5 tsf or less. Examples of Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

### **Methods of Evaluating Soil Type (Visual and Manual)**

The competent person shall determine the soil type prior to the installation of an excavation or trench protective system. The following visual and manual tests to determine soil composition are considered acceptable as defined by OSHA 1926.652, which defines visual and manual tests as:

#### *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 visual test process includes:

1. Observing samples of the soil excavated and the soil in the sides of the excavation. Estimating the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of coarse grain sand or gravel is considered granular material.
2. Observing the site of the opened excavation and the surrounding area. Crack-like openings could indicate fissured soil, as would chunks of spalling (chipping) off a vertical side. Small spalls are evidence of moving ground and are indications of potentially hazardous conditions.

3. Observing soil as it is excavated. Soil that breaks up easily and does not stay in clumps is considered granular.
4. Observing the area within and adjacent to the excavation to identify evidence of underground structures and previously undisturbed soil.
5. Observing the area within and adjacent to the excavation to identify layered systems. Examine layered systems to determine whether the layers slope toward the excavation. Estimate the degree of slope of the layers.
6. Observing the sides and the area adjacent to the excavation for surface water or ground water, or the location of the water table.
7. Observing the area within and adjacent to the excavation for sources of vibration that may effect the stability of the excavation face.

#### *Manual Tests*

There are three common types of manual tests used to classify soil composition, which are as follows:

1. Plasticity Test,
2. Dry Strength Test, and
3. Thumb Penetration Test

Each test is described below:

#### *Plasticity Test*

1. Mold a moist or wet ball of the soil into a ball.
2. Attempt to roll it into threads as thin as 1/8" in diameter. Cohesive soil can be rolled successfully into threads without crumbling. For example, if at least a 2" length thread can be held on one end without tearing, the soil is cohesive.

# Excavation / Trenching

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### Dry Strength Test

1. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular.
2. If the soil is dry and falls into clumps which break 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.
3. If the dry soil breaks into clumps which do not break up into small clumps and which only can be broken up with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

### Thumb Penetration Test

1. Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb, however, they can only be penetrated by the thumb with very great effort.
2. Type B soils with an unconfined compressive strength greater than .5 tsf, but less than 1.5 tsf may be indented by the thumb and molded with moderate force.
3. Type C soils with an unconfined compressive strength .5 tsf or less can be easily penetrated by the thumb and can be molded by light finger pressure.
4. If a pocket penetrometer is used, all other tests must still be completed due to occasional erroneous readings from hard, dry soil samples.

### Protective Systems

Every employee in an excavation shall be protected from cave-ins by an adequate protective system, unless:

1. The excavation is made entirely in stable rock; or
2. Excavations are less than 5 ft. in depth and examination by a competent person provides

no indication of a potential cave-in. Protective systems shall 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.

Protective systems consist of one, and in some instances, a combination of the following:

1. Sloping
2. Benching
3. Shoring, such as timber or metal
4. Shielding, such as a trenchbox

All sloping of excavations shall be performed in accordance with Table 16-1, which illustrates the sloping requirements for each soil type, if this is the protection method chosen:

Table 16-1, Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V) <sup>1</sup> for Excavations Less than 20 Feet Deep <sup>3</sup>
Stable Rock	Vertical (90 Deg.)
Type A <sup>2</sup>	¾: 1 (53 Deg.)
Type B	1:1 (45 Deg.)
Type C	1 ½:1 (34 Deg.)

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
2. A short-term maximum allowable slope of ½H:1V (63 degrees) 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 ¾H:1V (53 degrees).
3. Sloping or benching for excavations greater than 20 feet depth shall be designed by a registered professional engineer.

# Excavation / Trenching

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*Appendix D* of this section, entitled Slope Configurations, provides specific details for various configurations of sloping, benching, and shielding of an excavation or trench. It shall be used as the minimum requirements for the design and implementation of a protective system for an excavation or trench. If a sloping, benching, or shielding system, or a combination of any of the above, shall be used utilizing other tabulated data outside of the requirements, identified in *Appendix C*, it shall be designed and approved by a registered professional engineer. A signed copy of such protective system shall be maintained at the job site. All shoring and shielding protective systems designed and approved by a registered professional engineer shall be signed and maintained at the job site. If the Company rents, leases, or purchases a manufactured shoring or shield system, it shall be installed accordance to the manufacturer's specifications and recommendations. A copy of the manufacturer's specifications, recommendations, and limitations shall be maintained at the job-site and available for review.

### **Subcontractors**

Subcontractors shall have a written excavation and trenching program that meets or exceeds the provisions established in this section. If a subcontractor does not have such a program, they shall not perform any work until they adopt the Company program and have received training on the contents including responsibilities and expectations.

### **Training**

All applicable employees shall receive training on the contents of this program upon new hire and annually thereafter. Re-training shall be conducted if an unsafe behavior or practice is observed or an observation reveals that an employee clearly does not understand the provisions of this program.

### **Appendices**

Appendix A – APWA Uniform Color Code

Appendix B – Excavation Permit

Appendix C – Daily Excavation Log

Appendix D – Slope Configurations

**Appendix A**  
**APWA UNIFORM COLOR CODE**  
**FOR MARKING UNDERGROUND UTILITY LINES**

	Proposed Excavation
	Temporary Survey Markings
	Electric Power Lines, Cables, Conduit and Lighting Cables
	Gas, Oil, Steam, Petroleum or Gaseous Materials
	Communication, Fiber Optic, Alarm or Signal Lines, Cables or Conduit
	Potable Water
	Reclaimed Water, Irrigation and Slurry Lines
	Sewers and Drain Lines

**CALL BEFORE YOU DIG!**



## Appendix C Daily Excavation Log

Project #: \_\_\_\_\_ Name of Project: \_\_\_\_\_

Date: \_\_\_\_\_ Excavation Permit #: \_\_\_\_\_

Soil Classification: \_\_\_\_\_ Excavation Depth: \_\_\_\_\_

Excavation Width: \_\_\_\_\_ Location of Excavation: \_\_\_\_\_

Competent Person: \_\_\_\_\_

**NOTE:** Prior to start of daily work activities, all excavation 5 feet or greater (less than 5 feet in unstable soil) are to be inspected by a competent person. The following items shall be evaluated:

- |   | <u>Yes</u>               | <u>No</u>                | <u>N/A</u>               |
|---|--------------------------|--------------------------|--------------------------|
| A. Barricades located around perimeters of excavations, wells, pits, shafts, etc.?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B. Warning system established and utilized when mobile equipment is operating near edge of excavation?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C. Walkways and bridges over excavations 4 feet or more in depth equipped with standard guardrail?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D. Stairway, ladder, or ramp located in excavations 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees for access and egress?.....                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E. Are the spoil piles a minimum of 2 feet back from the edge of the excavation?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F. Are employees protected from loose rock or soil, materials, and/or equipment that could pose a hazard by falling or rolling into the excavation?.....                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| G. Are ground fault circuit interrupters (GFCI's) being used on all electrical equipment?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| H. Adequate precaution taken to protect employees from exposure to an atmosphere containing less than 19.5% oxygen and/or other hazardous atmospheres in excavation greater than 4 feet?..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I. Crack-like opening or spalling observed?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| J. Did each employee receive training in excavating?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

***(list names of employees assigned to work in excavation below – please print)***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Appendix C**  
**Daily Excavation Log**  
**(page 2)**

- Soil Classification (pocket penetrometer test): ***(check one only)***

\_\_\_\_\_ Type A – Cohesive soils which have an unconfined compression strength of 1.5 ton per square foot (tsf) or greater. Example: Rock, clay, and sandy loam soils. Previously disturbed soil cannot be classified as Type A soil. Slope  $\frac{3}{4}$ :1 (53°).

\_\_\_\_\_ Type B – Cohesive soils which have an unconfined compression strength of 0.5 tsf but less than 1.5 tsf. Examples: Angular gravel (similar to crushed rock), silt, silt loam, and sandy loam. Slope 1:1 (45°).

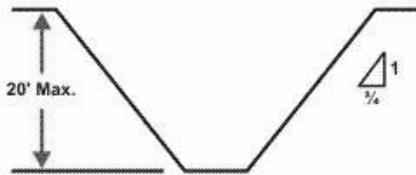
\_\_\_\_\_ Type C – Cohesive soils which have an unconfined compression strength of 0.5 tsf or less. Example: Granular soils including gravel, sand, loamy sand, and soil from which water is freely seeping and/or standing. Slope 1:1/2:1 (34°).

## APPENDIX D SLOPE CONFIGURATIONS

(All slopes stated below are in the horizontal to vertical ratio)

### D-1.1 EXCAVATIONS MADE IN TYPE A SOIL

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4:1



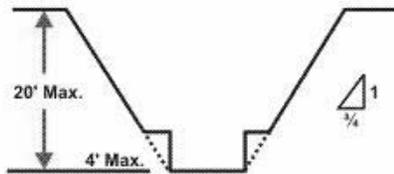
Simple Slope - General

- Exception: 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 1/2:1.

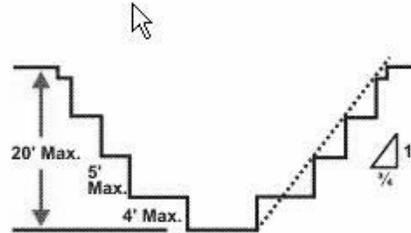


Simple Slope - Short Term

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4:1 and maximum bench dimensions as follows:

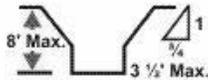


Simple Bench



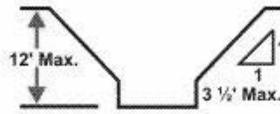
Multiple Bench

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3 1/2 feet.



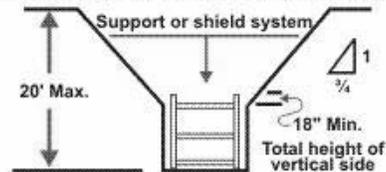
Unsupported Vertically Sided Lower Portion-  
Maximum 8 Feet in Depth

- 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 3 1/2 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 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



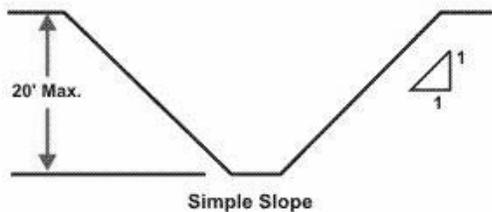
Supported or Shielded Vertically Sided  
Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under §1926.652(b).

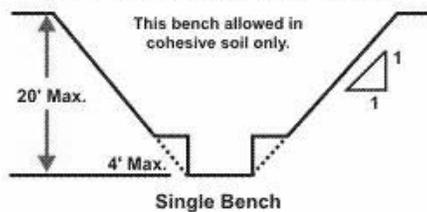
## APPENDIX D SLOPE CONFIGURATIONS

### D-1.2 EXCAVATIONS MADE IN TYPE B SOIL

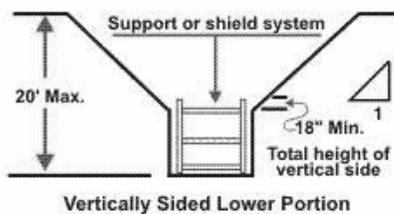
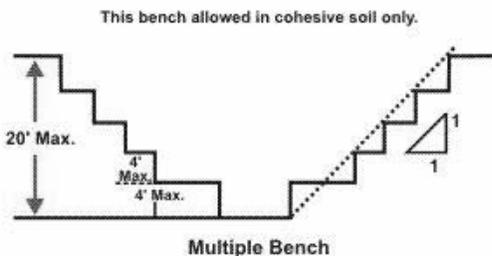
1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.



2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:



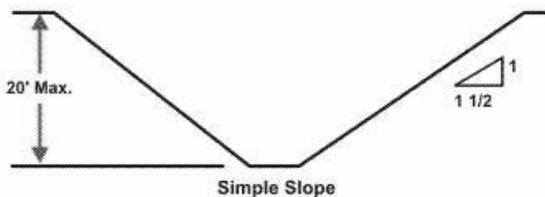
3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



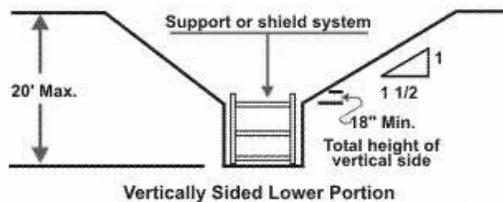
4. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

### D-1.3 EXCAVATIONS MADE IN TYPE C SOIL

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 1/2:1.



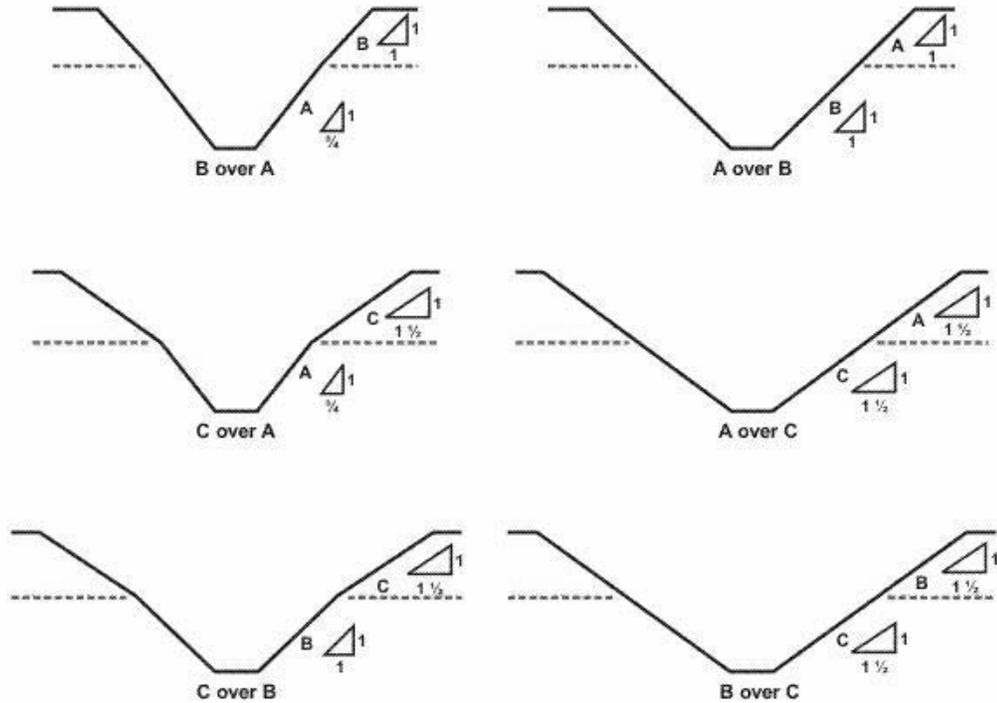
2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1 1/2:1.



3. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

**APPENDIX D**  
**SLOPE CONFIGURATIONS**  
**D-1.4 EXCAVATIONS MADE IN LAYERED SOILS**

1. 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.



2. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

# Compressed Air

## Section 17.1

### Purpose

The following rules have been developed to assure safe use of compressed air, related tools, and air-supply equipment.

### References

OSHA 1910.169

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall audit projects and office locations to assure these rules have been implemented and enforced.

#### *Employee*

Shall be aware of this policy and utilize safe compressed air work practices. Employees shall be accountable to these rules and their workplace actions.

### General Requirements

1. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.
2. All hose and tool attachments shall be equipped with a separate, positive locking mechanism that prevents hoses and tools from being disconnected during operation.
3. All tools, hoses, and compressed air equipment supplied to employees shall be in a safe operating condition.

### Air Receivers

The following rules apply to compressed air receivers and other equipment used in providing and utilizing compressed air for cleaning, drilling, hoisting, and chipping operations:

1. Air receivers shall be so installed that all drains, handholes, and manholes therein are easily accessible. Air receivers shall never be installed in an inaccessible or hard to reach area.
2. A drain pipe and valve shall 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 shall 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.
3. Every air receiver shall be equipped with an indicating pressure gage (so located as to be readily visible) and with one or more spring-loaded safety valves. The total relieving capacity of such safety valve shall be such as to prevent pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10%.
4. No valve of any type shall be placed between the air receiver and its safety valve(s).
5. Safety appliances, such as safety valves, indicating devices and controlling devices, shall be constructed, located, and installed so that they cannot be readily rendered inoperative by any means, including the elements.
6. All safety valves shall be tested frequently and at regular intervals to determine whether they are in good operating condition.

# Compressed Air

## Section 17.1

### Training

All applicable employees shall be given instruction on this policy as applicable upon new hire or as job tasks require.

Re-training shall be conducted periodically thereafter.

# Demolition

## Section 18.1

### Purpose

The Company has developed the following policy and rules for the safe execution of demolition activities performed on structures, mechanical, electrical, and / or chemical systems.

### References

OSHA 1926.850

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including: the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing technical assistance, employee training, and / or other resource materials to ensure this policy as well as other demolition requirements are implemented.

#### *Employee*

Shall have read and be familiar with all applicable aspects of this policy. Employees are responsible for safe work practices and shall be accountable for their workplace actions.

### General Requirements

1. Demolition activities involving structures and / or buildings require an engineering survey by a competent person to determine the condition of the framing, floors, and walls for the possibility of unplanned collapse of any portion of the structure.
2. If such a survey is required, the Manager or Supervisor is responsible for coordinating such work prior to the commencement of any demolition activities.

3. All applicable electric, gas, steam, water, and other utilities servicing the building or structure shall be shut off, capped, or otherwise controlled outside the building or perimeter before demolition work commences. All applicable utility owners shall be notified of such activity before the work begins.
4. If it is necessary to maintain electric, water, or other utilities during demolition, these utilities shall be temporarily relocated and protected as necessary.
5. A review of the demolition work shall be made for the presence of any hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous materials that have been used in any piping, tanks, or other equipment scheduled for demolition. When the presence of any such substance is suspected or known, testing or purging shall be performed and the hazard eliminated prior to demolition.
6. All demolition activities shall be performed with consideration to the requirements in Section 11.4 of this manual, entitled Lockout / Tagout.
7. If a hazard exists or is created through demolition activities that expose employees to a wall, hole, or floor opening, it shall be protected by a cover or standard handrail system that meets all applicable requirements. If the fall hazard can not be controlled in this fashion, employees shall be issued and utilize suitable fall arrest or restraint equipment to afford protection from the hazard.
8. When demolition debris shall be dropped into a refuse container, a drop chute shall be utilized to contain such materials to protect adjacent employees from overhead hazards. The area immediately around the drop chute shall be effectively protected to prevent personnel from frequenting the area. Drop chutes shall be of significant construction to withstand the loads imposed.

# Demolition

## Section 18.1

9. Where applicable, substantial gate shall be installed in each chute at or near the discharge end. A competent person shall be assigned to control the operation of the gate, including backing and loading of trucks.
  10. When operations are not in progress, the area surrounding the end of a chute shall be securely closed off.
  11. Chutes shall be protected with a standard guardrail system. Openings adjacent to the chute shall be solidly covered with material capable of supporting imposed loads.
  12. Where material is dumped into the chute via wheelbarrows or mechanized equipment, a securely attached toeboard or bumper, not less than 4 inches thick and 6 inches high, shall be erected.
  13. Canopies shall be erected at entrances to the structure, the perimeter of the building, or as overhead hazards warrant to protect employees, employees of others, and in some instances the general public. Canopies shall be of sound construction and be capable of supporting intended loads.
  14. Prior to demolition activities of any underground utility and / or structures, the local or regional "Diggers Hotline" shall be contacted. Refer to section 16 entitled Excavation / Trenching for specific protocols and requirements unique to excavation activities.
- Mechanical Demolition (Piping and related equipment)*
- Prior to the demolition of any piping system, the Manager and / or Supervisor shall verify the contents of such piping and the status of the system when it is turned over for demolition. It is best if the client or owner purges, releases stored piping content, and / or physically disconnects the pipe or piping system, valve, or line prior to our work. However, if that is not feasible, the following steps shall be taken:
1. Identify the piping, fittings, and branch lines that are scheduled for demolition.
  2. Check insulation for asbestos containing materials. Refer to section 4.9, entitled "Asbestos" for further guidance. **The Company is not authorized to remove asbestos.**
  3. Mark the piping, fittings, and branch lines included in the demolition. Identify distinct start and end points.
  4. Identify root valves or other appropriate locations that will fulfill lockout / tagout requirements for the work.
  5. Reconfirm the status of the line when it will be turned over for demolition.
  6. Review any Owner / Client rules unique to demolition and / or line breaking.
  7. Select and outfit the crew with the appropriate PPE suitable for any residual contaminant, chemical, or other hazard that may be in the line.
  8. Review with the crew the procedures and special safety requirements that will be followed throughout the course of the demolition.
  9. Affix lockout / tagout devices to the appropriate location prior to the start of demolition activities.
  10. Where applicable, a test hole may be drilled in a piping system to verify that residual pressure is released. In addition, the test hole can afford the ability to allow air monitoring equipment to detect the presence of flammable or explosive environments.
  11. Coordinate proper disposal of demolition materials.

# Demolition

## Section 18.1

### *Roofing*

Prior to the demolition (either partial or in whole) activity of any roofing system, the Manager or Supervisor shall review the following items to assure adequate safeguards and procedures have been implemented for all applicable employees:

1. Rule out the presence of asbestos containing materials in the roofing system. Refer to section 4.9, entitled "Asbestos" for further guidance.
2. Develop a fall protection plan for the work that will be conducted. This shall include both fall arrest systems and guardrails and / or covers for any hole opening(s) or other fall hazard(s) we may create through the scope of our activities.
3. Develop a plan for the removal of the existing roofing system.
4. Create a method to safely remove old roofing components utilizing the provisions for drop chutes outlined in the General Requirements of this Section.
5. The plan mentioned above shall also include a barricading or perimeter protection system for any employees or member to the general public potentially exposed to the overhead work.
6. Identify the applicable PPE that will be required for the exposures presented.
7. Review with the crew the procedures and special safety requirements that will be followed throughout the course of the demolition.

### *Electrical System Demolition*

Prior to the demolition of any electrical system, the Manager and / or Supervisor shall verify the scope of that system prior to the commencement of any work activities. It is best if the Owner de-energizes or releases stored energy, and / or physically disconnects the electrical system and its components prior to our work. However, if that is not feasible, the following steps shall be taken:

1. Identify the breakers, circuits, disconnects, process controls, conductors and other electrical system components that are scheduled for demolition.
2. Rule out the presence of asbestos containing materials in all electrical systems and components. Aged switch gear can contain PCB's and should be reviewed for such content.
3. Mark the breakers, circuits, disconnects, process controls, conductors and other electrical systems included in the demolition. Identify distinct start and end points.
4. Identify main disconnects and or other de-energization locations that will fulfill lockout / tagout requirements for the work.
5. Reconfirm the status of the line when it will be turned over for demolition.
6. Review any Owner / Client rules unique to demolition of electrical systems.
7. Select and outfit the crew with the appropriate PPE suitable for any hazard that may be reasonably anticipated.
8. Prepare written procedures for the safe execution of the de-energization of the system.
9. Review with the crew the procedures and special safety requirements that will be followed throughout the course of the demolition.
10. Affix lockout / tagout devices to the appropriate location prior to the start of demolition activities.
11. Verify the system is de-energized through test starts or applicable testing equipment that identifies a zero energy state.
12. Dispose of all electrical components in compliance with applicable regulations.

# Demolition

## Section 18.1

### Training

Prior to any demolition activity, employees shall receive training on all applicable safety rules and requirements. They shall also be instructed on work progression and the procedures that will be utilized to safely perform the work. Applicable hazardous communication training shall also be conducted to inform employees how to safely work around any hazardous material they may confront during demolition activities. Re-training shall occur when conditions change or a previously unknown hazard is detected.

# Stairways and Ladders

## Section 19.1

### Purpose

The Company has developed the following policy for the construction, when applicable, and safe use of stairways and ladders for all projects and fixed facilities.

### References

OSHA 1926.1050, 1910.27

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by providing employee training, resources, or technical information with respect to this program.

#### *Employees*

Shall be responsible for understanding all applicable aspects of this program, utilize safe work practices associated with stairways and ladders, and be accountable for their workplace actions.

### General Requirements

1. A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches or more, and no ramp, runway, sloped embankment or personal hoist is provided.
2. Employees shall not use any spiral stairway that will not be a permanent part of the structure on which construction work is being performed.
3. When a building or structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of

access is restricted, a second point of access shall be provided and used.

4. When a building or structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees.
5. All stairway and ladder fall protection systems required by these rules must be installed and comply with all applicable requirements before employees begin work that requires them to utilize stairways or ladders and their respective fall protection systems.

### Stairways

The following requirements apply to all stairways as indicated:

1. Stairways that will not be a permanent part of the structure on which construction work is being performed shall have landing of not less than 30 inches in the direction of travel and extend at least 22 inches in width at every 12 feet of vertical rise.
2. Stairs shall be installed between 30 degrees and 50 degrees from horizontal.
3. Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs.
4. Where doors or gates open directly on a stairway, a platform shall be provided that extends at least 20 inches beyond the swing radius of the door.
5. Metal pan landings and/or treads shall be secured in place before filling with concrete or other materials.
6. All parts of stairways shall be free of hazardous projections such as protruding nails.
7. Except during construction of the actual stairway, stairways with metal pan landings and treads must not be used where the treads and/or landings have not been filled in with concrete or other material, unless the pans of the stairs and/or landings have

# Stairways and Ladders

## Section 19.1

been filled in with wood or other suitable material capable of supporting the intended loads. All treads and landings must be replaced when worn below the top edge of the pan.

8. Except during construction of the actual stairways, skeleton metal-frame structures and steps must not be used where treads and / or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings.
9. Temporary treads must be made of wood or other solid material and installed the full width and depth of the stair.
10. Slippery conditions on stairways shall be eliminated unsafe access and/or egress.

### Stair Rails and Handrails

The following requirements apply to all stairways as indicated:

1. Stairways having four or more risers or rising more than 30 inches, whichever is less must have a least one handrail. A stair rail must be installed along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the height of the top edge must not be more than 37 inches nor less than 36 inches from the upper surface of the stair rail to the surface of the tread.
2. Winding or spiral stairways must be equipped with a handrail to prevent using areas where the tread width is less than 6 inches.
3. Mid rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must be provided between the top rail and stairway steps of the stair rail system.
4. Mid rails, when used, must be located midway between the top of the stair rail system and the stairway steps.
5. Screens or mesh, when used, must extend from the top rail to the stairways step and along the opening between top rail supports.

6. Intermediate vertical members, such as balusters, when used, must not be more than 19 inches apart.
7. Other intermediate structural members, when used, must be installed such that there are no openings more than 19 inches wide.
8. Handrails and the top rails of the stair rail system shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge in any downward or outward direction, at any point along the top edge.
9. The height of handrails must not be more than 37 inches nor less than 30 inches from the upper surface of the handrail to the surface of the tread.
10. Stair rail systems and handrails must be so surfaced in order to prevent injuries from punctures or lacerations, and to prevent snagging of clothing.
11. Handrails must provide an adequate handhold for employees to grasp to prevent falls.
12. The ends of stair rail systems and handrails shall be constructed so as not to constitute a projection hazard.
13. Temporary handrails must have a minimum clearance of 3 inches between the handrail and walls, stair rail systems, and other objects.
14. Unprotected sides and edges of stairway landings shall be protected with standard guard rail systems.

### Fixed Ladders

Ladders that will be part of a permanent structure shall be designed and installed in accordance with the following minimum requirements:

# Stairways and Ladders

## Section 19.1

1. The minimum design live load shall be a single concentrated load of 200 pounds. The number and position of additional concentrated live-load units of 200 pounds each as determined from anticipated usage of the ladder shall be considered in the design.
2. All ladder rungs shall have a minimum of 3/4's inch for metal ladders. The distance between rungs and cleats shall not exceed 12 inches and be uniform throughout the ladder.
3. Rungs, steps, cleats, and steps shall be free of sharp edges, splinters, burrs, or other hazardous projections.
4. Metal ladders shall be painted or otherwise treated to resist corrosion and rusting when locations subject ladders to such condition.
5. For ladders without cages or wells, a clear width of at least 15 inches shall be provided each way from centerline of the ladder, except when cages or wells are necessary.
6. The distance from the centerline of rungs, cleats, or steps to the nearest permanent object in back of the ladder shall not be less than 7 inches, except when unavoidable obstructions are encountered.
7. The distance from the centerline of the grab bar to the nearest permanent object in back of the grab bars shall not be less than 4 inches.
8. The step across distance from the nearest edge of the ladder to the nearest edge of equipment or structure shall not be more than 12 inches, or less than 2 ½ inches.
9. Cages or wells shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet.
10. Cages shall extend a minimum of 42 inches above the top of the landing unless other acceptable protection is provided.
11. Cages shall extend down the ladder to a point not less than 7 feet not more than 8 feet above the base of the ladder.
12. Cages shall not extend less than 27 inches nor more than 28 inches from the centerline of the rungs of the ladder. Cages shall not be less than 27 inches in width. Vertical cage bars shall be located at a maximum spacing of 9 ½ inches on center.
13. When ladders are used to ascend to heights exceeding 20 feet, except for chimneys, landing platforms shall be provided for each 30 feet of height or fraction thereof, except that, where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof. Each ladder section shall be offset from adjacent sections.
14. All landing platforms shall be equipped with standard railings and toe boards, so arranged to give safe access to the ladder. Platforms shall not be less than 24 inches in width and 30 inches in length.

### Portable Ladders

The following requirements apply to all portable ladders as indicated:

1. All self-supporting and non self-supporting ladders must be able to support four times the maximum intended load.
2. All ladders shall have visible duty ratings identified on the equipment.
3. Portable ladders shall not be tied or fastened together to create longer sections.
4. A metal spreader or locking device must be provided on each stepladder to effectively hold the front and back sections in the open position when the ladder is being used.
5. Extension ladders shall be secured at the top to an adjacent structure, at a minimum, to prevent tipping. If securing the ladder is not feasible, a co-worker shall be used to steady the ladder while it is occupied.

# Stairways and Ladders

## Section 19.1

6. All job-made ladders, if permitted, shall be constructed in accordance with applicable OSHA requirements.
7. Ladder components shall be so surfaced to prevent injury from punctures or lacerations and to prevent snagging of clothing.
8. Wood ladders shall not be coated with any opaque coating, except for identification or warning labels, which may be placed on a side rail.
9. Ladders made of conductive materials shall not be used if electrical hazards are present.
10. The rungs and steps of ladders must be corrugated, knurled, dimpled, or coated with a skid resistant material to minimize slipping.
5. Job-made ladders (wood) with spliced side rails must be used at an angle where the horizontal distance is one-eighth the working length of the ladder.
6. Fixed ladders must be used at a pitch no greater than 90 degrees from the horizontal, measured from the back side of the ladder.
7. Portable ladders must not be used on slippery surfaces unless secured or provided with slip resistant feet to prevent accidental movement. Slip-resistant feet must not be used as a substitute for the care in placing, lashing, or holding a ladder upon slippery surfaces.
8. Ladders placed in such areas such as passageways, doorways, or driveways where they can be displaced by workplace activities or traffic must be secured to prevent accidental movement, or a barricade must be used to keep traffic or activities away from the ladder.

### Ladder Usage

The following requirements apply to safe work practices when using ladders:

1. When portable ladders are used for access to an upper landing surface, the side rails must extend at least 3 feet above the upper landing surface. The ladder must be secured, and a grasping device, such as a grab rail, must be provided to assist workers in mounting and dismounting the ladder. A ladder extension must not deflect under a load that would cause the ladder to slip off its support.
2. Ladders must be maintained free of oil, grease, and other slipping hazards.
3. Ladders must not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity.
4. Non-self supporting ladders must be used at an angle where the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder.
9. The area around the top and bottom of ladders shall be kept clear of materials, equipment, and/or tools.
10. The top step on step ladders shall not be used for work, inspection, or any other activity.
11. Ladders made of conductive materials shall not be used if electrical hazards are present.
12. Cross-bracing on the rear section of step ladders shall not be used for climbing unless the ladder is designed for that purpose.
13. Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any incident that could affect their safe usage.
14. All employees shall face the ladder for all climbing and descending activities.
15. Each employee shall maintain three points of contact while ascending and descending the ladder.

# Stairways and Ladders

## Section 19.1

16. All employees utilizing ladders must not carry any object or load that could cause loss of balance subjecting them to a fall.
  17. Employees subjected to fall hazards of 6 feet or greater while working on a ladder shall wear a safety harness and lanyard and tie-off to a secure anchorage point consistent with the requirements outlined in the Section 13.1 of this manual entitled Fall Prevention and Protection.
  3. The proper construction, use, placement, and other safe work practices associated with stairways and ladders.
- This training shall be provided initially upon date of hire as applicable and periodically thereafter.

### Inspections

All ladders shall be inspected prior to each use. Specifically, the user shall evaluate the following items and take the necessary actions for defective or deficient ladder components:

1. Portable ladders with structural defects, such as: broken or missing rungs, cleats, steps, broken or split rails, corroded components, or other faulty or defective components, must immediately be marked defective, or tagged with "Do Not Use" or similar language, and be destroyed or withdrawn from service until they can be repaired.
2. Fixed ladders with structural defects, such as: broken or missing rungs, cleats, steps, broken or split rails, corroded components, must be tagged "Do Not Use" until they can be repaired.
3. Ladder repairs must restore the ladder to a condition meeting its original design criteria before the ladder is returned to use. Repairs must be under the supervision or directly performed by a competent person.

### Training

All applicable employees shall receive training on the stairway and ladder program, which shall include instruction on:

1. The nature of fall hazards in the workplace,
2. The correct procedures for erecting, maintaining, inspecting, and disassembling the fall protection systems to be used, and

# Water Intrusion Management Plan (WIMP)

## Section 20.1

### **Purpose**

The intent of this policy is to identify best practices to control the proliferation of mold growth during the manufacturing, fabrication, distribution, and construction or installation of our company products for all facilities that support human occupancy.

### **Responsibilities**

The Company understands that certain business lines have a potential to support mold growth. It is critical to exercise preventative actions and best industry practices to eliminate environments that support mold habitation. The key to reducing mold exposures is through the utilization of sound construction applications, procedures to prevent mold growth, and timely response to water intrusion issues that can infiltrate our products and materials, other contractor's products and materials, or the owner's property. It is essential that we have responsibilities assigned to various disciplines within the Company to prevent mold-related problems. These responsibilities are defined as follows:

#### *Managers*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Project Managers*

Assure that all construction materials are reasonably free from moisture during the procurement, construction, and commissioning of newly installed systems. This individual shall also have responsibility to evaluate and procure alternative building materials that inhibit mold growth as site and end-user applications apply.

#### *Superintendents / Supervisors*

Shall establish means and methods to keep company-manufactured and client's building materials as reasonably moisture-free as possible. This individual(s) shall immediately

notify the Project Manager and APi Risk Management Department of significant water intrusion issues.

#### *Safety Manager*

Responsible to provide training on the contents of the Water Intrusion Management Plan to all applicable employees. This individual shall also serve as a technical resource for occupational safety and health related issues unique to this policy.

#### *Quality Control Supervisor*

Shall develop company-specific quality control or other preventative procedures that will inhibit the development of mold growth.

#### *Subcontractor*

All subcontractors shall adhere to all applicable provisions of this policy upon entering into contractual agreements with the Company. All subcontractors shall provide the company with evidence of mold insurance coverage, including limits, prior to contract award. Subcontractors shall also immediately notify the Company of any water intrusion issue caused by any direct or indirect execution of their work.

### **Scope**

There are literally thousands of mold type variations and they can exist essentially anywhere. Molds grow on virtually any organic substance, as long as moisture and oxygen are present. One thing remains constant when attempting to reduce or mitigate mold growth; controlling moisture.

All of our business lines have the potential to experience mold growth. For the purposes of this policy, however, we have identified those operations having the largest potential exposures based on the environments in which they are manufactured or installed. These operations are as follows:

1. Fire Protection Systems
2. HVAC Systems

# Water Intrusion Management Plan (WIMP)

## Section 20.1

3. Insulation Manufacturing, Fabrication, and Installation
4. Roofing Installation and Repair
5. Plumbing and Process Piping Installation
4. On larger projects, ask General Contractor if a Water Intrusion Plan for the project has been developed to be used as a guide for our work.
5. Determine whether alternative building products should be utilized to reduce the proliferation of mold growth as environmental conditions warrant. Note, this should be given special consideration for those environments with a relative humidity over 50%.

### Contract and Indemnification Language

All applicable companies with potential mold exposures shall immediately implement and hold all subcontractors signatory to the revised Environmental Risk Indemnification Agreement, listed as *Appendix A* of this policy, in all future contract and bid documents. The revised language includes new and applicable references to mold and related issues. The Company Manager, or their designee, shall develop and implement contract turnover / commissioning documents that detail the owner or end-user's requirements to periodically inspect, repair, replace company-installed systems or materials, or to immediately notify the Company of any significant water intrusion issue to minimize the potential of mold growth.

### Quality Control Provisions

Each business line within the Company shall implement quality control provisions that will prohibit mold growth and identify both proactive methods that have or will be executed to mitigate mold growth as well as the procedural steps that will be implemented to deal with water intrusion issues. At a minimum, these quality control provisions shall include:

#### *Pre-Construction*

1. Conduct a mold survey of the existing structure prior to the commencement of any work.
2. If mold is present, take photographs of the conditions for documentation.
3. Notify Owner and / or General Contractor, in writing, of any mold problems.

#### *Construction*

1. Find suitable locations to store manufactured or construction materials that should not become wet prior to or during construction.
2. Investigate any signs of mold up to and including testing substances for mold if there is doubt as to the composition of the substance.
3. Control entry of rain water, leaky pipes, and ensure proper caulking and or flashing installation.
4. Schedule work activities and associated coordination efforts to limit both external and internal water exposures.
5. Fix underlying water problems as soon as possible.
6. Seal off building or work location and cover materials if exposed to the elements.
7. Inspect all exterior product installations for leaks and exposure to water or moisture.
8. Verify that building is being inspected to proper specifications.

A Mold Prevention Checklist, listed as *Appendix B* in this policy, serves as an additional aid in the development of quality control measures that can be implemented to control mold related issues.

# Water Intrusion Management Plan (WIMP)

## Section 20.1

### Incident Investigation

Mold growth typically takes place when materials have been subject to moisture or water intrusion for 24-48 hours. Therefore, it is imperative that all instances of water intrusion are immediately reported and abated to minimize the potential for mold growth. APi Risk Management shall also be contacted without delay to assist in the incident investigation process, mold remediation, and overall claim management as applicable.

### Remediation

The Company, when notified of water intrusion issues, shall take the requisite actions to remediate conditions that inhibit mold growth. An assessment of the magnitude of the mold or moisture problem shall be conducted to determine utilizing a remediation firm. The Company and its affiliates are not mold remediation contractors; however, we may self-perform small scale water intrusion management activities. Water intrusion, moisture, and mold issues of a larger scale shall be remediated by a qualified third party contractor as determined by the Company and/or the property owner/client.

If a small mold problem is evident and the Company determines that we can safely self-perform the removal of moldy materials utilizing best industry practices, the applicable Safety Manager shall be consulted to identify Personal Protective Equipment considerations for our employees and proper material disposal. Regardless of who performs the remediation activities, it is important to communicate with applicable building or facility occupants with respect to the remediation plan. Considerations must be given to relocating occupants if there is concern that they could be exposed to mold if allowed to stay in the area. In addition, HVAC systems known to or suspected of being contaminated with mold growth shall not be operated until the mold has been remediated.

### Training and Education

All applicable personnel within the Company shall receive initial training on this Water Intrusion Management Plan initially and annually thereafter, or as conditions warrant. Documentation of such training shall be maintained by the applicable Safety Manager.

### Appendices

Appendix A – Environmental Risk Indemnification Agreement

Appendix B – Mold Prevention Guidelines

**Appendix A**  
**Environmental Risk Indemnification Agreement**  
**(for the Company use when subcontracting work).**

Subcontractor shall indemnify, defend and hold harmless, Contractor ( ), its agents, officers and employees from and against all claims, demands, actions, causes of actions, suits, damages, expenses (including attorney's fees) and liabilities whatsoever based upon, resulting from, arising out of, or in any way connected with a discharge, dispersal, release, seepage, migration, escape or presence of smoke, vapors, odors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, microbial matter (including all forms of mold), asbestos containing materials (ACM's), electromagnetic fields, waste materials, including medical, infectious and pathological wastes, or toxic irritants, contaminants or pollutants into or upon land or structures thereupon, the atmosphere or any water course or body of water ( including groundwater), which may occur or be alleged to have occurred as a result of or in connection with any actions or omissions or otherwise of the Subcontractor, its employees and/or agents, or anyone under its direction or control; or on its behalf, whether or not on the site of the Contractor.

**Additional Indemnification Language**  
**(for the Company use when performing subcontracted work).**

The Company will not be responsible for the presence of any microbial matter due to circumstances out of our control either during or after the job is complete.

## **Appendix B Mold Prevention Guidelines**

Always remember the key to mold control is moisture control! The following prevention guidelines will assist you in reducing the likelihood of mold problem at your project.

### **New Construction**

1. Do not allow foundations to stay wet. Provide drainage and slope the ground away from foundation as soon as possible.
2. "Dry in" the structure as soon as possible.
3. Where water is entering the structure, provide temporary controls until the permanent controls can be installed.
4. Promptly clean and dry areas where water has accumulated. Use pumps, wet vacuums, and fans as necessary.
5. Store building materials where they will not get wet. Pay close attention to dry wall, carpeting, lumber, ceiling tile, block, insulation, and other porous materials.
6. Set material on dunnage or pallets where feasible. Ensure that if a material is covered with tarpaulins that it can "breathe".
7. **Do not install material/s that shows signs of mold growth.**
8. **Any material that develops mold growth after installation must be evaluated to determine why it developed. Mold must be cleaned or the material removed.**

### **Demolition**

1. Include mold in the demolition engineering survey and plan.
2. Fix leaky plumbing and leaks in the building envelope as soon as possible.
3. Promptly clean up any water produced from the demolition process.
4. Watch for condensation and wet spots. Fix all source(s) of moisture problem(s) as soon as possible.
5. Maintain low indoor humidity, below 60% relative humidity (RH), ideally 30-50%, if possible.
6. Continue to communicate with building occupants, as appropriate to the situation.

### **Expansions**

1. Provide controls to prevent water from entering the construction process and/or occupied space.
2. Maintain the existing building envelope as long as possible.
3. Promptly clean up any water that may have entered the existing building.
4. Maintain the integrity of the existing roof.
5. Continue to communicate with building occupants, as appropriate to the situation.

## Appendix B Page 2

### Documentation

1. Conduct a mold survey prior to conducting any work in an existing structure. Photograph any problems. Notify the building owner, in writing, of any mold problems.
2. Contact a mold expert/consultant for significant mold problems.
3. Immediately notify the architect, owner, or general contractor of any design problems that may result in a moisture problem.
4. Take detailed progress photos to prove construction was completed as designed.
5. Document any / all clean-up procedures. Ensure follow-up photos are taken.

# Machine Guarding

## Section 21.0

### Purpose

To establish and implement requirements for the safeguarding of machinery and/or equipment, and the proper use of these safeguards.

### References

OSHA 1926.211

### Responsibilities

#### *Managers / Supervisors*

Shall be responsible for the implementation of the program including, the necessary leadership, direction, enforcement, and resources that will assure the program's effectiveness.

#### *Safety Manager*

Shall assist Managers and Supervisors by auditing the employees work environment for compliance issues and then will assist in the correction effort. This individual will conduct training for employees.

#### *Employee*

Employees are responsible for identifying machine guarding hazards and reporting those hazards to a Supervisor and/or Safety Manager.

### General Requirements

1. Guards are barriers which prevent access to danger areas.
2. Safeguards must meet these general requirements:
  - a. **Prevent Contact:** The safeguard must prevent hands, arms, or any part of a worker's body or clothing from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator and/or other workers from placing parts of their bodies near hazardous moving parts.

- b. **Secure:** Worker(s) should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.
- c. **Protect From Falling Objects:** The safeguard should ensure that no objects can fall into moving parts. A small tool which is dropped into a cycling machine could easily become a projectile that could strike and injure someone.
- d. **Create No New Hazard:** A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.
- e. **Create No Interference:** Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.
- f. **Allow Safe Lubrication:** If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with the line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

# Machine Guarding

## Section 21.0

3. There are many ways to safeguard machinery. 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.
4. As a general rule, power transmission apparatus is best protected by fixed guards that enclose the danger area. For hazards at the point of operation, where moving parts actually perform work on stock, several kinds of safeguarding are possible. One must always choose the most effective and practical means available. Safeguards can be grouped under the following five general classifications:
  - a. Guards
  - b. Devices
  - c. Location / Distance
  - d. Potential Feeding and Ejection Methods to Improve Safety for the Operator
  - e. Miscellaneous Aids

### Training

Employees shall receive training upon new hire as applicable and periodically thereafter.



## Competency Examination

- 1) A full body harness with lanyard shall be worn and secured to a suitable anchorage point when exposed to fall hazards equal to or greater than 6 feet.  
True \_\_\_\_\_ False \_\_\_\_\_
- 2) Scaffolding can be erected by any employee.  
True \_\_\_\_\_ False \_\_\_\_\_
- 3) Scaffolding shall be equipped with a top rail, \_\_\_\_\_, and a toeboard.
- 4) Extension ladders shall be secured at the top, extend 3' above the landing surface, and be placed at a 4 to 1 ratio with respect to height and footing placement.  
True \_\_\_\_\_ False \_\_\_\_\_
- 5) Ladders or other elevating platforms can safely be used on scaffolding to achieve a greater height.  
True \_\_\_\_\_ False \_\_\_\_\_
- 6) Aerial lifts require operator training and \_\_\_\_\_ before use.  
a) Inspection b) Survey of ground conditions  
c) familiarization with controls d) A, B, & C
- 7) Maintain a minimum clear distance of 10' with all overhead power lines.  
True \_\_\_\_\_ False \_\_\_\_\_
- 8) \_\_\_\_\_ shall be used with all temporary electric tools.  
a) GFI b) GFCI's c) MRI's
- 9) Extension cords, hoses, welding leads shall be routed overhead, whenever feasible, and suspended via non-conductive means.  
True \_\_\_\_\_ False \_\_\_\_\_
- 10) A \_\_\_\_\_ permit shall be completed and posted at work locations that produce flame, spark, or other ignition sources.  
a) Fire b) Work c) Hot Work
- 11) An \_\_\_\_\_ fire extinguisher offers the best protection for extinguishing most fires.  
a) AB b) BC c) ABC d) D
- 12) I am required to wear \_\_\_\_\_ as the basic personal protective equipment for this job or position.  
*[select all that apply]:* a) Safety Glasses  
b) Hard Hat c) Work Boots  
d) Steel Toed Work Boots e) Gloves
- 13) Beards and / or significant facial hair can significantly affect the protection factor of a respirator.  
True \_\_\_\_\_ False \_\_\_\_\_
- 14) Prior to an excavation or trench, a state or local agency must be called to identify underground utilities.  
True \_\_\_\_\_ False \_\_\_\_\_
- 15) Material safety data sheets (MSDS's) for all hazardous materials used in the workplace are available to you.  
True \_\_\_\_\_ False \_\_\_\_\_
- 16) MSDS's for this project or facility are located \_\_\_\_\_.
- 17) What is the emergency number for a fire, spill, chemical or medical emergency, that will summon emergency response? \_\_\_\_\_.
- 18) I am responsible for keeping my work area in a clean and orderly fashion.  
True \_\_\_\_\_ False \_\_\_\_\_
- 19) I am responsible to actively participate in the Company's Safety Program, follow safe work procedures, and be accountable for my workplace actions.  
True \_\_\_\_\_ False \_\_\_\_\_
- 20) I am responsible for notifying my employer of any workplace injury or illness immediately upon occurrence.  
True \_\_\_\_\_ False \_\_\_\_\_

\_\_\_\_\_  
Name

\_\_\_\_\_  
S.S. #

\_\_\_\_\_  
Job Number

\_\_\_\_\_  
Date

## Tool Box / Safety Meeting Sign-In Log

TOPIC(S): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***(Attach or Photocopy meeting contents to the back of this log.)***

Video Title(s) (1): \_\_\_\_\_ (2): \_\_\_\_\_

Instructor(s): \_\_\_\_\_

Location of Training: \_\_\_\_\_ Date: \_\_\_\_\_

	Print Name	Signature	Employee Number/SSN
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			

Other items/issues discussed at meeting: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Violation Notice

Employee Name: \_\_\_\_\_ Craft / Occupation: \_\_\_\_\_

Project Number: \_\_\_\_\_ Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_ Date: \_\_\_\_\_

This notice has been issued to advise the above-named employee of a violation of established work rules or safety standards. The activity described below has the potential for serious injury to the employee, co-workers, employees of others, and or loss of property or equipment. Further violation(s) of established work rules or safety standards shall be cause for disciplinary action, which can include immediate termination and or removal from the job-site.

Nature of Violation or Infraction: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Action Taken:  
(Check One)

- Verbal Warning
- Written Warning (Suspension of \_\_\_\_ Days)
- Termination

Issued By: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Manager's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Employee's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Distribution: Original to employee  
Copy to Project Manger  
Copy to Union Local or employer  
Copy to Safety Department

## Statement of Understanding

### DRUG SCREENING PANEL

Drug Screening and Gas Chromatography/Mass Spectrometry (GC/MS) confirmation for six (6) categories of drugs will be required, with the following cut-off limits.

Tests	Screen Cutoff	Confirmation Cutoff
<b>Urine:</b>	<u>(ng/ml)</u>	<u>(ng/ml)</u>
Amphetamines	500	250
Cannabinoids	50	15
Cocaine Metabolite	150	100
Opiates	2000	2000
Phencyclidine	25	25
MDMA	500	250
<b>ALCOHOL (EBT)</b>	.04 or greater	

**Drug Program Summary** – The Company and affiliates Testing Protocol is a 6-panel non-NIDA, non-DOT split specimen.

The Company has made a commitment to its Employees and Customers that it will provide and maintain a drug and alcohol-free work environment. The use of drugs or alcohol in Company and affiliate workplaces poses a serious threat to the safety of our Employees, compromises the quality and reliability of the products and services we owe our Customer and jeopardizes the protection of property owned by The Company, the Customer and/or other Companies who will be working alongside The Company. Therefore, the following activities are prohibited:

1. Use, possession, distribution or sale of alcohol, drugs or drug paraphernalia
2. Being under the influence of drugs or alcohol
3. Use of drugs or alcohol that affects or adversely impairs the individual's work performance or his or her own, or others' safety while at the workplace
4. Use of drugs or alcohol that results in a measurable (threshold level or above) presence of any controlled substance (drug or alcohol) in the body that is set by this policy or a Collective Bargaining Agreement that may apply.

Violation of these prohibitions may result in immediate termination or suspension of the work assignment, and will make the employee ineligible for rehire/reinstatement until the various requirements outlined in the Company Policy have been successfully completed.

### **Statement of Understanding**

As an applicant for work assignment with The Company, I have read the above Drug Free Workplace Program Summary and have received a copy of the Company Drug Abuse and Alcohol Misuse Program. I understand that my work assignment is contingent upon my acceptance of this program and that it is a condition of my continued employment..

I understand that The Company and/or its Customer may conduct drug and alcohol testing that is either allowed by the Drug Abuse and Alcohol Misuse Program, by any applicable Collective Bargaining Agreement or otherwise contractually required by the Owner or Customer. Other unannounced searches and inspections may also be conducted to the extent that they do not violate the terms of any Collective Bargaining Agreement that may apply to my employment. I also acknowledge that a positive drug/alcohol test, or a refusal, may disqualify me from workers compensation benefits and or unemployment compensation benefits.

I understand that the confirmed presence of drugs in my system or my confirmed possession of drugs or alcohol in the workplace may result in the termination or suspension of my employment and make me ineligible for rehire/reinstatement until the various requirements outlined in the Company Policy up to and including, but not limited to:

1. Documentation that the individual is actively participating in or has successfully completed an approved rehabilitation program. Program cost is the responsibility of the individual.
2. Submission to a drug screen and/or an alcohol test (EBT) at time of rehire/reinstatement and for periodic and unannounced testing at the company's discretion for up to five years after rehire/reinstatement.

I understand the company may release my confidential records in the case of administrative or legal action, or any other action that I initiate.

Nothing contained in this program summary or the full policy is intended to violate the terms of any Collective Bargaining Agreement that may apply. Please refer to the full Drug Abuse and Alcohol Misuse Policy for further details.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

## Consent to Substance Abuse Testing

I, \_\_\_\_\_ (print name), hereby voluntarily consent to provide a specimen for drug and alcohol testing, and searches to be conducted by personnel contracted to perform these services for APi Group Inc in accordance with the Drug Abuse and Alcohol Misuse Policy as well as any applicable collective bargaining agreement. I voluntarily consent to the taking of a specimen of blood/urine, oral fluid or breath for testing to determine the presence of illegal or unauthorized substances in my body system. I understand that refusal to consent to the tests, or a positive test result, or a prohibited item found in my possession or personal effects which could be used to defraud the test, will be cause for the company to withdraw their offer of employment if I am an applicant for employment; or to take disciplinary action, including discharge, if I am an employee.

### Authorization to Release Information

I authorize collectors, physicians, MRO's, laboratories, medical technicians, law enforcement officers, or other qualified personnel appointed by the Company to release to the management of The Company and Affiliates information regarding testing conducted and the results of the tests performed on the specimen provided by me. This authorization to disclose information terminates after \_\_\_\_/\_\_\_\_/\_\_\_\_ (one year from today.)

I authorize APi to release test(s) results to the Owner of a jobsite when these results are required as a condition of my access to that jobsite.

### Additional Comments:

I have been advised of my rights to receive a copy of this authorization, the results of the test and to request confirmatory retest of the split specimen should I so elect.

I have previously tested through the APi Drug/Alcohol Abuse Program:  Yes  No

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*Donor Signature*

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*Management Signature*

cc: Donor  
Employee Confidential File

**Western States Fire Protection**  
**REASONABLE SUSPICION CONTEMPORANEOUS OBSERVATION CHECKLIST**  
**(Strictly Confidential)**

Employee Name	Function	Incident Date	Time
Name Supervisor 1	Title	Location Incident Observed	
Name Supervisor 2	Title	Concurrence (In person/phone/other)	

This checklist is to be completed when an incident has occurred which provides reasonable suspicion that an employee is under the influence of a prohibited drug or alcohol. You should note all contemporaneous pertinent behavior and physical signs or symptoms which lead you to reasonably believe that the employee has recently used or is under the influence of a prohibited substance. Mark each applicable item on this form and add any additional facts or circumstances which you have noted. (NOTE: If there are long-term behavioral indicators of substance abuse which support this checklist, please also include the Reasonable Suspicion Long-Term Observation Checklist).

**A. NATURE OF INCIDENT/CAUSE FOR SUSPICION**

- ( ) 1. Observed possession or use of an unknown substance
- ( ) 2. Apparent drug or alcohol intoxication
- ( ) 3. Observed abnormal or erratic behavior consistent with drugs or alcohol
- ( ) 4. Arrest or conviction for drug-related offense
- ( ) 5. Other observations consistent with prohibited drug use or alcohol misuse (e.g., reports by passenger or reliable/credible third party, flagrant violation of safety or serious misconduct, fighting or argumentative/abusive language, refusal of supervisor instruction, unauthorized absence on the job). NOTE: PLEASE DESCRIBE BELOW

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**B. BEHAVIORAL INDICATORS NOTED**

- ( ) 1. Verbal abusiveness
- ( ) 2. Physical abusiveness
- ( ) 3. Extreme aggressiveness or agitation
- ( ) 4. Withdrawal, depression, tearfulness, or unresponsiveness
- ( ) 5. Other erratic or inappropriate behavior (e.g., hallucinations, disoriented, excessive euphoria, talkativeness, confused) NOTE: PLEASE DESCRIBE BELOW

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**Western States Fire Protection**  
**REASONABLE SUSPICION CONTEMPORANEOUS OBSERVATION CHECKLIST-P2**

**C. PHYSICAL SIGNS OR SYMPTOMS**

- ( ) 1. Possessing, dispensing or using prohibited substances
- ( ) 2. Slurred or incoherent speech
- ( ) 3. Unsteady gait or loss of physical control, poor coordination
- ( ) 4. Dilated or constricted pupils or unusual eye movement
- ( ) 5. Bloodshot or watery eyes
- ( ) 6. Extreme fatigue or sleeping on the job
- ( ) 7. Excessive sweating or clamminess of skin
- ( ) 8. Flushed or very pale face
- ( ) 9. Highly excited or nervous
- ( ) 10. Nausea or vomiting
- ( ) 11. Odor of an alcoholic beverage
- ( ) 12. Odor of marijuana
- ( ) 13. Disheveled appearance or out of uniform
- ( ) 14. Dry mouth (frequent swallowing/lip wetting)
- ( ) 15. Dizziness or fainting
- ( ) 16. Shaking hands or body tremors/twitching
- ( ) 17. Rapid breathing/breathing irregularly/difficulty breathing/slow breathing
- ( ) 18. Runny nose or sores around the nose
- ( ) 19. Inappropriate wearing of sunglasses
- ( ) 20. Puncture marks or "tracks" over veins
- ( ) 21. Other. PLEASE DESCRIBE BELOW:

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**D. WRITTEN SUMMARY**

Please summarize the facts and circumstances of the incident, employee response, supervisor actions taken, and any other pertinent information not previously noted. Please note the date, time, and location(s) of the Reasonable Cause observation(s). Note if the employee REFUSED the test. Attach additional sheets as needed.

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Signature of Supervisor	Date/Time	Signature of Supervisor 2	Date/Time
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**Western States Fire Protection**  
**REASONABLE SUSPICION LONG-TERM OBSERVATION CHECKLIST, page 2**

**C. GENERAL JOB PERFORMANCE**

YES NO

- 1. Excessive use of sick leave
- 2. Frequent Monday/Friday/after holiday absences or similar pattern
- 3. Frequent unexplained disappearances/trips to rest room, etc.
- 4. Excessive "extension" of breaks or lunch
- 5. Frequently leaves work early
- 6. Frequent personal phone calls
- 7. Increased concern about, or instances of, safety violations
- 8. Experiences, or causes, job accidents
- 9. Major changes in duties or responsibilities
- 10. Interferes with or ignores established procedures
- 11. Inability to follow through on performance recommendation

**D. PERSONAL MATTERS**

YES NO

- 1. Changes in or unusual personal appearance (dress, hygiene)
- 2. Changes in usual speech (incoherent, loud, stuttering or slurred)
- 3. Changes in or unusual facial expressions, flushed or clammy face, bloodshot eyes
- 4. Much increased or reduced level of activity (fatigue, sleeping on the job, high activity)
- 5. Changes in usual topics of discussion
- 6. Increasingly irritable, tearful, excitable, nervous
- 7. Persistently boisterous or rambunctious
- 8. Unpredictable or out-of-control displays of emotions
- 9. Engages in discussions about obtaining drugs or alcohol
- 10. Has personal relationship problems (spouse, girl/boyfriend, children, in-laws)
- 11. Makes unfounded accusations toward others (i.e., has feelings of persecution)
- 12. Secretive or furtive
- 13. Memory problems (difficulty recalling instructions, data, past behavior)
- 14. Frequent colds, flu, or other illness
- 15. Excessive fatigue
- 16. Makes unreliable or false statements
- 17. Unrealistic self-appraisal or grandiose statements
- 18. Temper tantrums or angry outbursts
- 19. Demanding, rigid, inflexible
- 20. Major changes in physical health
- 21. Other, please specify

Other information/observations--attach additional sheets if necessary

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Signature of Supervisor	Date/Time	Signature of Supervisor 2	Date/Time
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**Western States Fire Protection  
Reasonable Suspicion Guidelines And Tips  
For Supervisory Intervention**

**Supervisor Guideline Steps:**

- Eye Witness Event or Behavior
- Document on Reasonable Suspicion Checklist Behavior/Situation as it relates to job performance and sign bottom of form
- Contact employee's supervisors to inform of situation and ask for assistance
- Read script to employee with another supervisor present
- Drive employee to collection site

**Supervisor Intervention Tips:**

**Do Not.....**

- Diagnose
- Moralize
- Be overly sympathetic
- Cover up
- Talk about with others

**Do.....**

- Know the policy
- Focus on job performance
- Be specific
- Be respectful
- Document

**Reasonable Cause Script:**

( \_\_\_\_\_ ) (employee name), as you know the API Group has a Drug Abuse and Alcohol Misuse Policy and as an employee of API Group you have agreed to abide by its policy to prevent drug and alcohol abuse in the workplace.

At this time, as your supervisor I am instructing you that a reasonable cause determination of drug or alcohol use has been made and you must submit to a drug test and/or breath alcohol test at this time.

An API Group representative will go with you to the collection site.

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*Suspected employee is not allowed to drive himself/herself to the collection site location. If an employee leaves the premises in a private vehicle against the supervisor's instruction, the Supervisor may consider notifying local authorities.*



# Criminal Policy Grade Assessment Sheet

## Grade I – Green

- No Discrepancies

Required Action: None

## Grade II – Yellow

The following criteria shall be used for evaluating all other crimes not listed in Grade III Red below, and in evaluating whether to grant an exception for failure to disclose disqualifying crimes:

- Currently has an active warrant(s).
- Determination that untruthful application or disclosure form was not intentional or grossly negligent or unreasonable under the circumstances.
- Nature/Severity of crime
- Time Since crime occurred/sentence completed
- Relation to job duties
- Whether the crime has been expunged from the individual's record or the individual has been pardoned
- Evidence that the individual is rehabilitated
- The safety of APi Group, Inc. clients and staff

Required Action: Review criteria above.

## Grade III – Red

Conviction of the following felony crimes results in Mandatory withdrawal of an offer or termination of an individual's position

- Murder
- Solicitation of children to engage in sexual conduct
- Abuse, neglect or exploitation of a vulnerable adult or child
- Aggravated robbery
- Arson
- Assault
- Assault with a dangerous weapon or with great bodily injury
- Battery
- Felony level conviction related to theft, fraud, forgery, receiving stolen property
- Kidnapping
- Manslaughter
- Sexual assault
- Appears as a Sexual Offender

Required Action: Mandatory Disqualification

# PRE-ADVERSE ACTION LETTER

## (New Hire Only)

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

Recently you applied for a position at APi Group and Subsidiaries. Part of the application process includes authorization for a background verification to be done by a consumer reporting agency.

This communication is to notify you that we are considering making an adverse employment decision based on our hiring criteria, including information received in your background verification report from Verified Credentials, Inc.

A copy of your report is enclosed, as well as a copy of your rights under the Fair Credit Reporting Act. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc. within five business days of the receipt of this letter.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

Attachments: Copy of VCI Report  
Copy of "A Summary of Your Rights under the FCRA"

CC: Applicant File  
Chris Rafferty

# ADVERSE ACTION LETTER

## (New Hire Only)

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

We regret to inform you that based on our hiring criteria we are unable to consider you further for an employment opportunity with our organization. This decision was made in part from the information we receiver from Verified Credentials, Inc., our employment screening vendor. Verified Credentials, Inc. does not make these decisions and is unable to provide you with specific reasons for them.

In accordance with the Fair Credit Reporting Act, you previously received a copy of this information and a copy of your rights under the Act. You also have the right to obtain a free copy of the report within 60 days of the receipt of this letter by contacting Verified Credentials, Inc at the address and telephone number listed below. Please refer to these documents if you have further questions. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

CC: Applicant File  
Chris Rafferty

# PRE-ADVERSE ACTION LETTER

## (Current Employee Only)

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

Recently APi Group and Subsidiaries submitted information for a background check. Part of the employee retention process includes authorization for a background verification to be done by a consumer reporting agency.

This communication is to notify you that we are considering making an adverse employment decision based on our hiring criteria, including information received in your background verification report from Verified Credentials, Inc.

A copy of your report is enclosed, as well as a copy of your rights under the Fair Credit Reporting Act. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc. within five business days of the receipt of this letter.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

Attachments: Copy of VCI Report  
Copy of "A Summary of Your Rights under the FCRA"

CC: Employee File  
Chris Rafferty

# ADVERSE ACTION LETTER

## (Current Employee Only)

Date

Applicant Name

Address

City/State/Zip Code

Dear (Applicant Name),

We regret to inform you that based on our employee retention criteria we are unable to accommodate you further for employment with our organization. This decision was made in part from the information we received from Verified Credentials, Inc., our employment screening vendor. Verified Credentials, Inc. does not make these decisions and is unable to provide you with specific reasons for them.

In accordance with the Fair Credit Reporting Act, you previously received a copy of this information and a copy of your rights under the Act. You also have the right to obtain a free copy of the report within 60 days of the receipt of this letter by contacting Verified Credentials, Inc. at the address and telephone number listed below. Please refer to these documents if you have further questions. You have the right to dispute the accuracy or completeness of the information contained in the report by contacting Verified Credentials, Inc.

Verified Credentials, Inc.  
20890 Kenbridge Court  
Lakeville, MN 55044  
(800) 473-4934

Any dispute regarding the information on your report must be resolved with Verified Credentials, Inc.

Sincerely,

(Your Name)  
(Your Title)

CC: Employee File  
Chris Rafferty

# Summary of Rights Under the Fair Credit Reporting Act

*Para informacion en espanol, visite [www.ftc.gov/credit](http://www.ftc.gov/credit) o escribe a la FTC Consumer Response Center, Room 130-A 600 Pennsylvania Ave. N.W., Washington, D.C. 20580.*

## **A Summary of Your Rights Under the Fair Credit Reporting Act**

The federal Fair Credit Reporting Act (FCRA) promotes the accuracy, fairness, and privacy of information in the files of consumer reporting agencies. There are many types of consumer reporting agencies, including credit bureaus and specialty agencies (such as agencies that sell information about check writing histories, medical records, and rental history records). Here is a summary of your major rights under the FCRA. **For more information, including information about additional rights, go to [www.ftc.gov/credit](http://www.ftc.gov/credit) or write to: Consumer Response Center, Room 130-A, Federal Trade Commission, 600 Pennsylvania Ave. N.W., Washington, D.C. 20580.**

- **You must be told if information in your file has been used against you.** Anyone who uses a credit report or another type of consumer report to deny your application for credit, insurance, or employment – or to take another adverse action against you – must tell you, and must give you the name, address, and phone number of the agency that provided the information.
- **You have the right to know what is in your file.** You may request and obtain all the information about you in the files of a consumer reporting agency (your “file disclosure”). You will be required to provide proper identification, which may include your Social Security number. In many cases, the disclosure will be free. You are entitled to a free file disclosure if:
  - a person has taken adverse action against you because of information in your credit report;
  - you are the victim of identify theft and place a fraud alert in your file;
  - your file contains inaccurate information as a result of fraud;
  - you are on public assistance;
  - you are unemployed but expect to apply for employment within 60 days. In addition, by September 2005 all consumers will be entitled to one free disclosure every 12 months upon request from each nationwide credit bureau and from nationwide specialty consumer reporting agencies. See [www.ftc.gov/credit](http://www.ftc.gov/credit) for additional information.
- **You have the right to ask for a credit score.** Credit scores are numerical summaries of your creditworthiness based on information from credit bureaus. You may request a credit score from consumer reporting agencies that create scores or distribute scores used in residential real property loans, but you will have to pay for it. In some mortgage transactions, you will receive credit score information for free from the mortgage lender.
- **You have the right to dispute incomplete or inaccurate information.** If you identify information in your file that is incomplete or inaccurate, and report it to the consumer reporting agency, the agency must investigate unless your dispute is frivolous. See [www.ftc.gov/credit](http://www.ftc.gov/credit) for an explanation of dispute procedures.
- **Consumer reporting agencies must correct or delete inaccurate, incomplete, or unverifiable information.** Inaccurate, incomplete or unverifiable information must be removed or corrected, usually within 30 days. However, a consumer reporting agency may continue to report information it has verified as accurate.
- **Consumer reporting agencies may not report outdated negative information.** In most cases, a consumer reporting agency may not report negative information that is more than seven years old, or bankruptcies that are more than 10 years old.
- **Access to your file is limited.** A consumer reporting agency may provide information about you only to people with a valid need -- usually to consider an application with a creditor, insurer, employer, landlord, or other business. The FCRA specifies those with a valid need for access.
- **You must give your consent for reports to be provided to employers.** A consumer reporting

# Summary of Rights Under the Fair Credit Reporting Act

agency may not give out information about you to your employer, or a potential employer, without your written consent given to the employer. Written consent generally is not required in the trucking industry. For more information, go to [www.ftc.gov/credit](http://www.ftc.gov/credit).

- **You may limit “prescreened” offers of credit and insurance you get based on information in your credit report.** Unsolicited “prescreened” offers for credit and insurance must include a toll-free phone number you can call if you choose to remove your name and address from the lists these offers are based on. You may opt-out with the nationwide credit bureaus at 1-888-567-8688.
- **You may seek damages from violators.** If a consumer reporting agency, or, in some cases, a user of consumer reports or a furnisher of information to a consumer reporting agency violates the FCRA, you may be able to sue in state or federal court.
- **Identity theft victims and active duty military personnel have additional rights.** For more information, visit [www.ftc.gov/credit](http://www.ftc.gov/credit).

**States may enforce the FCRA, and many states have their own consumer reporting laws. In some cases, you may have more rights under state law. For more information, contact your state or local consumer protection agency or your state Attorney General. Federal enforcers are:**

TYPE OF BUSINESS:	CONTACT:
Consumer reporting agencies, creditors and others not listed below	Federal Trade Commission: Consumer Response Center -FCRA Washington, DC 20580 1-877-382-4357
National banks, federal branches/agencies of foreign banks (word "National" or initials "N.A." appear in or after bank's name)	Office of the Comptroller of the Currency Compliance Management, Mail Stop 6-6 Washington, DC 20219 800-613-6743
Federal Reserve System member banks (except national banks, and federal branches/agencies of foreign banks)	Federal Reserve Board Division of Consumer & Community Affairs Washington, DC 20551 202-452-3693
Savings associations and federally chartered savings banks (word "Federal" or initials "F.S.B." appear in federal institution's name)	Office of Thrift Supervision Consumer Complaints Washington, DC 20552 800-842-6929
Federal credit unions (words "Federal Credit Union" appear in institution's name)	National Credit Union Administration 1775 Duke Street Alexandria, VA 22314 703-519-4600
State-chartered banks that are not members of the Federal Reserve System	Federal Deposit Insurance Corporation Consumer Response Center, 2345 Grand Avenue, Suite 100 Kansas City, Missouri 64108-2638 1-877-275-3342
Air, surface, or rail common carriers regulated by former Civil Aeronautics Board or Interstate Commerce Commission	Department of Transportation , Office of Financial Management Washington, DC 20590 202-366-1306
Activities subject to the Packers and Stockyards Act, 1921	Department of Agriculture Office of Deputy Administrator -GIPSA Washington, DC 20250 202-720-7051

## Report of Workability

Job location: \_\_\_\_\_ Date: \_\_\_\_\_ Appointment Time: \_\_\_\_\_

Employee: \_\_\_\_\_ SS #: \_\_\_\_\_ DOB: \_\_\_\_\_

Date of incident: \_\_\_\_\_ Employer: \_\_\_\_\_

Contact person: \_\_\_\_\_ Fax #: \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Work related                      Permanent Disability?  Likely     Not likely     Undetermined  
 Not work related  
 Undetermined                      MMI?                       No     Yes    If yes, give date: \_\_\_\_\_

If employee is not accompanied by an employer representative or employee is not able to return to unrestricted work, call \_\_\_\_\_ at \_\_\_\_\_ company or APi Risk Management at 651-558-3305.

### EMPLOYEE CAPABILITIES

	<i>Occasional</i> 0-33%	<i>Frequent</i> 34-66%	<i>Continuous</i> 67-100%		<i>Occasional</i> 0-33%	<i>Frequent</i> 34-66%	<i>Continuous</i> 67-100%
<b>Lift/Carry:</b>				Bend ____ degrees			
0-10 lbs	—	—	—	Twist/Turn	—	—	—
11-20 lbs	—	—	—	Kneel/Squat	—	—	—
21-50 lbs	—	—	—	Sit	—	—	—
51-100 lbs	—	—	—	Stand/Walk	—	—	—
<b>Push/Pull:</b>				Overhead Reaching	—	—	—
0-25 lbs	—	—	—	Ladder/Stair Climb	—	—	—
26-50 lbs	—	—	—	Rotate			
51-75 lbs	—	—	—	activities/positions	—	—	—
76-100 lbs	—	—	—				

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Keep wound clean and dry. Change dressing every: \_\_\_\_\_  
 Medication: \_\_\_\_\_ (as directed) *May cause drowsiness*  
 Physical Therapy: \_\_\_\_\_  
 Specialist Referral: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Return to clinic on: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

*The above has been discussed with the employee.*

Physician signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Supervisor's Report of Injury / Illness

EVERY INCIDENT SHOULD BE INVESTIGATED AND THE CAUSES CORRECTED TO PREVENT OTHER INCIDENTS OF THIS TYPE. DO NOT OVERLOOK THE SO-CALLED "UNIMPORTANT" CASES. BECAUSE, EXCEPT FOR THE "CHANCE" THEY COULD ALSO HAVE BEEN SERIOUS. IT IS ONLY BY THOROUGH INVESTIGATION THAT MANY OF THE REAL CAUSES CAN BE DETERMINED AND CORRECTED.

Post-incident drug test performed? Yes \_\_\_\_\_ No \_\_\_\_\_

Employee Name: \_\_\_\_\_ Company: \_\_\_\_\_

Department: \_\_\_\_\_ Job #: \_\_\_\_\_ Project Name: \_\_\_\_\_

Location: \_\_\_\_\_ Occupation: \_\_\_\_\_ Hire Date: \_\_\_\_\_

Incident Date: \_\_\_\_\_ Time: \_\_\_\_\_ Shift: Day \_\_\_ Night \_\_\_ Third \_\_\_

Was medical care provided by doctor or hospital? Yes \_\_\_ No \_\_\_ Date of initial visit: \_\_\_\_\_

Was medical care provided by an API Group designated medical provider? Yes \_\_\_ No \_\_\_

Was employee hospitalized overnight? Yes \_\_\_ No \_\_\_

Was medical care provided in an emergency room? Yes \_\_\_ No \_\_\_

If employee has returned to work, has he/she returned to normal duties? Yes \_\_\_ No \_\_\_

Has employee returned to restricted duty? Yes \_\_\_ No \_\_\_

Has there been a job transfer? Yes \_\_\_ No \_\_\_

Superintendent: \_\_\_\_\_ Foreman: \_\_\_\_\_

Describe what injured person was doing at the time of the incident, what happened, who was involved, nature of injury, part of body affected, etc. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was employee performing normal job duties? Yes \_\_\_ No \_\_\_ If no, please explain: \_\_\_\_\_  
\_\_\_\_\_

Number of employees at work site: \_\_\_ Witnesses' names: \_\_\_\_\_  
\_\_\_\_\_

Did the employee or other person engage in an unsafe work practice? Yes \_\_\_ No \_\_\_

If yes, please explain: \_\_\_\_\_  
\_\_\_\_\_

Describe any unsafe conditions (i.e.: unguarded equipment, site or building conditions, etc.): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective action: Describe what has been implemented to prevent reoccurrences: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Suspicions/concerns: Do you have any reason to question the validity of this claim? \_\_\_\_\_  
\_\_\_\_\_

Name other parties involved that may have contributed to this injury/illness: \_\_\_\_\_  
\_\_\_\_\_

Person submitting report: \_\_\_\_\_ Title: \_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_

## Completion Instructions for Supervisor's Report of Injury / Illness (SRI)

The primary purpose of the SRI is to aid in the investigation of an injury or illness. It is also used to report the accident to the central office there the First Report of Injury is then completed by administrative personnel. The SRI should be filled out as soon as possible after the accident.

If the SRI is incomplete or delayed, corrective action may also be delayed. A delay in taking corrective action can result in a similar accident happening again.

The initial information asked for at the top of the SRI concerning the injured person's name, occupation, age and job history and loss of time from work is self-explanatory but very necessary for eventual completion of the First Report of Injury.

The following is a line by line set of instructions for completion of the SRI by the supervisor of the injured employee. Concrete examples of important parts of the form are given for your use. This report should not be completed by the injured employee. However, consult with the employee and any witnesses to obtain information and provide guidance in follow-up for Remedy and Corrective Action.

### Questions

1. Was proper instruction given to the employee on how to do the job safely? It is the supervisor's responsibility to instruct their employees on how to do each job efficiently and safely.
2. Referred to in question #1.
3. The supervisor should have told the employee what personal protective equipment is necessary to do the job. Did the employee wear the personal protective equipment when this job was being done?
4. Was the work area clean and well organized? i.e.: boards on the floor, wet floor, spilled food, etc.
5. Was there inadequate supervision?
6. Was the injured person using equipment that was unsafe and in need of repair? i.e.: broken ladder, bad electric cord on drill, etc.
7. If a guard were built would it prevent another accident from happening? i.e.: guard around the belts and pulleys, railing properly in place, guard on saw, etc.
8. Did this person have any bodily defects that helped the accident to happen? i.e.: poor vision, previous back injury, etc.
9. An Unsafe Act is something that the injured person or another person did which he or she should not have done that led to the accident. Below is a list of the most common unsafe acts and contributing factors:
10. The accident should have been reported immediately to the supervisor, was it?

### Accident

1. Describe what the injured was doing at the time of the accident.
2. What happened?
3. Who was involved, what witnesses were there?
4. What injuries resulted? Example: John was drilling a hole in the ceiling and chips of plaster fell into his eye. (This answers questions 1 and 2.) John got chips of plaster in his eye, resulting in a scratch on his eye. John was wearing his prescription glasses (This answers questions 3 and 4.) Also, please note the number of employees at this work location and the names of witnesses, if any.

### Unsafe Act

Refer to question #9 above. Example: Using drill in overhead position without wearing proper eye protection.

### Unsafe Conditions

What conditions or circumstances caused the accident to happen? Example: John was not wearing proper personal protective equipment. Other examples are listed below.

#### **UNSAFE CONDITIONS**

- |   |                          |                      |
|---|--------------------------|----------------------|
| 1. Defective tools, equipment, substances | 4. Improper illumination | 7. Poor housekeeping |
| 2. Unsafe design or construction          | 5. Improper ventilation  | 8. Congested area    |
| 3. Hazardous arrangement                  | 6. Improper dress        | 9. Other             |

Remedy: Example: John was re-instructed to wear proper personal protective equipment such as goggles or face shield when drilling overhead.

Action Taken: Example: Standard safety policy requires use of personal protective equipment. This policy should be strictly enforced by the supervisors. Follow-up action taken with crew during toolbox talk.

### Medical Care

*This information is needed to fill out the First Report of Injury, and process claim properly.*

Suspensions / Concerns. (Do you have any reason to question the validity of this claim?) As a general rule, if the employee is injured while at work, that injury is covered under workers' compensation. However, if you as a supervisor have reason to suspect that the injury did not occur at work, please explain.

## Employee's Report of Injury / Illness

Name of injured person: \_\_\_\_\_

Address: \_\_\_\_\_

Home phone: \_\_\_\_\_ SS#: \_\_\_\_\_

Birth date: \_\_\_\_\_ Sex: M \_\_\_\_\_ F \_\_\_\_\_ Marital status: Single \_\_\_\_\_ Married \_\_\_\_\_

Occupation: \_\_\_\_\_ Date of hire: \_\_\_\_\_

Date of injury: \_\_\_\_\_ Time of injury: \_\_\_\_\_

Interviewed by/Dictated to: \_\_\_\_\_

Superintendent: \_\_\_\_\_ Foreman: \_\_\_\_\_

Injured Employee Statement (State specific job being done, machinery, tools, or objects involved and factors contributing to the accident): \_\_\_\_\_

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Nature of Injury: \_\_\_\_\_

Part of body injured: \_\_\_\_\_ Have you had prior injuries to this body part? \_\_\_\_\_

Did the actions of another party contribute to your injury? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please explain & name those parties: \_\_\_\_\_

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Name & address of treating physician or hospital/clinic: \_\_\_\_\_

Name & address of witness: \_\_\_\_\_

*I certify that all the above statements are true to the best of my knowledge.*

Signature of injured employee: \_\_\_\_\_

Date: \_\_\_\_\_ Job Location: \_\_\_\_\_

## Witness Statement of Injury / Illness Report

Name of employee injured: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Address: \_\_\_\_\_

Home phone: \_\_\_\_\_ Date of birth: \_\_\_\_\_ SS #: \_\_\_\_\_

Hire date: \_\_\_\_\_ Accident date: \_\_\_\_\_ Time of incident: \_\_\_\_\_

Accident location: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

You have been identified as a witness to a co-worker's injury / illness in the workplace.

Please describe your understanding of how this injury / illness occurred below, including the job being performed; machinery or tools being used; and any factor or condition you believe may have contributed to the accident at the time of the injury / illness:

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Type of injury (cut, sprain, etc.): \_\_\_\_\_

Part of body affected: \_\_\_\_\_

*The above statements are true and complete, to the best of my knowledge*

Signature of witness: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_

## General Liability / Property Loss Report

Damage / Loss to Property of Others or Injury to Others or Damage / Loss to Owned / Rented / Leased Property

<b>INSTRUCTIONS:</b>	<ol style="list-style-type: none"><li>1. Secure any material / equipment involved in loss / failure.</li><li>2. Take photos of origin of loss.</li><li>3. Take photos of damaged property.</li><li>4. Contact authorities, as applicable.</li><li>5. Contact API Group, Inc. Risk Management</li><li>6. Itemize all property damaged / stolen / destroyed.</li><li>7. DO NOT GIVE STATEMENTS TO OUTSIDE PARTIES.</li></ol>
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Company: \_\_\_\_\_ Branch: \_\_\_\_\_

Date of Loss: \_\_\_\_\_ Time of Loss: \_\_\_\_\_

Address of Jobsite or Loss Location: \_\_\_\_\_

Date reported to API Risk Management: \_\_\_\_\_

Contract Work (**Provide Copy of Contract**)

Date of Original Installation \_\_\_\_\_

Builders Risk Policy Provided? YES \_\_\_\_\_ NO \_\_\_\_\_

Service Work (**Provide Copy of Service Agreement/Inspection Report/Service Work Order, Etc**)

Service Agreement in Force? YES \_\_\_\_\_ NO \_\_\_\_\_

Limited Liability Language Included & Signed by Customer? YES \_\_\_\_\_ NO \_\_\_\_\_

Owner: \_\_\_\_\_ Owner contact/phone: \_\_\_\_\_

General Contractor: \_\_\_\_\_ Contact/phone: \_\_\_\_\_

Employee name: \_\_\_\_\_ Phone: \_\_\_\_\_

Supervisor's name: \_\_\_\_\_ Phone: \_\_\_\_\_

Project manager's name: \_\_\_\_\_ Phone: \_\_\_\_\_

Scope of work being performed when loss occurred: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Description of Incident: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Damages: (Please itemize.) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Possible defective equipment/part: (Please include description, mfg, distributor, etc): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Owned / Leased / Rented / Borrowed equipment involved – please define: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Authority contacted and case number: \_\_\_\_\_

Other contractors or other parties whose work or activities may have been a cause or contributing cause of the loss – please explain their involvement: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Other “Company” employees who may have witnessed or have information relative to loss:

NAME	PHONE

Other Witnesses:

NAME	COMPANY	PHONE

**Injuries** – Name, phone and address of injured, and if an employee of others, name of employer:

NAME	COMPANY/ADDRESS	PHONE

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# Motor Vehicle Accident Report

## Page 2

### OTHER DRIVER & OWNER INFORMATION

Driver Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Home Phone Number \_\_\_\_\_  
Work/Cell Phone Number \_\_\_\_\_ Driver's License Number \_\_\_\_\_ State \_\_\_\_  
Birth Date \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_

Owner Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Home Phone Number \_\_\_\_\_

Passenger Name \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_  
Passenger Name \_\_\_\_\_ Injured?  Yes  No If yes, describe: \_\_\_\_\_

### OTHER VEHICLE INFORMATION

Insurance Company \_\_\_\_\_ Phone Number \_\_\_\_\_  
Policy Number \_\_\_\_\_

Year \_\_\_\_\_ Make \_\_\_\_\_ Model \_\_\_\_\_ VIN \_\_\_\_\_  
License Plate \_\_\_\_\_ State \_\_\_\_\_ Color \_\_\_\_\_ Drivable?  Yes  No

### WITNESS INFORMATION

Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_

### PROPERTY DAMAGE OTHER THAN VEHICLES

Owner Name \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_ Phone Number \_\_\_\_\_  
What was damaged \_\_\_\_\_

Location of Property \_\_\_\_\_  
\_\_\_\_\_

**Authorization for Release of Medical Records**

To (Name of Provider): \_\_\_\_\_

Patient: \_\_\_\_\_ SSN: \_\_\_\_\_ DOB: \_\_\_\_\_  
\_\_\_\_\_

*The purpose of this authorization of release of medical information is to gather pertinent medical documents to support the workers' compensation process and to assess and employee's medical or vocational status and/or the development of alternative/modified work as applicable.*

I, \_\_\_\_\_ do hereby authorize any and all medical providers who have examined, treated or otherwise taken part in my medical care for an injury/illness date of \_\_\_\_\_ to my employer, \_\_\_\_\_, their insurance carrier, agent, or other representative, a copy of any/all pertinent medical information that may include:

- |   |   |
|---|---|
| <input type="checkbox"/> Discharge Summary                            | <input type="checkbox"/> Laboratory Reports   |
| <input type="checkbox"/> History & Physical                           | <input type="checkbox"/> Radiology, Films, Photographs, Videos, Digitals, or other Images |
| <input type="checkbox"/> Consultation Report                          | <input type="checkbox"/> Radiology Reports  |
| <input type="checkbox"/> Operative Report/Pathology Report            | <input type="checkbox"/> Pharmacy Records   |
| <input type="checkbox"/> Emergency Services Report                    | <input type="checkbox"/> Dental Records   |
| <input type="checkbox"/> Transcribed Hospital/Clinic Notes or Reports |   |
| <input type="checkbox"/> Other (specify): _____                       |   |

I understand this authorization may be revoked by me, in writing, at any time, but would not apply to any information already released in good faith. I understand that any disclosure of information carries with it the potential for unauthorized re-disclosure at which time the information may not be protected by federal privacy rules. I understand that once information is released as specified in this authorization, the facility, their employees and my physician(s) cannot prevent the re-disclosure of that information. I hereby release each of them from any and all liability arising directly or indirectly from disclosure authorized by this consent and any re-disclosure of that information. I understand authorizing disclosure of my medical information is voluntary. I can refuse to sign this authorization and still be assured treatment. I understand that I may inspect or copy the information to be used or disclosed.

A photocopy/fax of this authorization will be treated the same as an original. This authorization will remain in place for one year.

\_\_\_\_\_  
*Signature of Patient or Legal Guardian*

*Date signed*

\_\_\_\_\_  
*If not signed by Patient, identify relationship to patient*

## Emergency Contact Information

<b>Contact List</b>	<b>Phone Number</b>	<b>Cell Number</b>
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<b>Public Service</b>	<b>Emergency</b>	<b>Non-Emergency</b>
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Fire Department	or	
Police Department	or	
County Sheriff	or	

<b>Hospitals/Clinics</b>
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Center  
Hospital  
Clinic

<b>Ambulance/Medical Transport</b>	<b>Emergency</b>	<b>Non-Emergency</b>
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Rescue/Ambulance Services		
Damarco (MSDS Distributor)		(877) 451-6919

<b>After Hours Contact List</b>
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Zurich		(800) 989-3373
APi Risk Management		(651) 269-4703

## OSHA Inspection Report

Job Number: \_\_\_\_\_ Job Name: \_\_\_\_\_

Site Location: \_\_\_\_\_

Compliance Officer's Name: \_\_\_\_\_ Badge Number: \_\_\_\_\_  
(Provide Business Card)

What was the purpose of the visit as explained by the Compliance Officer?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was the visit due to an employee(s) complaint?  Yes  No

Were you provided a copy of the complaint?  Yes  No

Whom did the Compliance Officer initially contact at the job site?

\_\_\_\_\_ (Name) \_\_\_\_\_ (Position)

Did the Compliance Officer provide his / her credentials?  Yes  No

Did the Compliance Officer talk with workers / other personnel before showing their credentials?  Yes  No

Did the Compliance Officer take any pictures before he/ she arrived at the site and introduced himself / herself?  Yes  No

Were employees from other companies working at the jobsite, and did the Compliance Officer ask them to be present at the opening conference?  Yes  No

### **Opening Conference**

List the names and employer of those individuals attending the Opening Conference

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OSHA Inspection Report  
Page 2**

Explain how employee representatives were selected to participate in the inspection, if applicable.

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**Inspection of the Work, Site, or Office Location**

Company Representative accompanying the Compliance Officer

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(Name)

(Position)

Other Company Representatives participating in inspection

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Comments made by the Compliance Officer with respect to our work

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Did the Compliance Officer take Photographs of our work?     Yes     No

If yes, please attach photos with a description of the location photo graph was taken.

Did the Compliance Officer stop work at any area inspected?     Yes     No

If yes, explain the nature and duration of the work stoppage.

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**OSHA Inspection Report  
Page 3**

Did the Compliance Officer request to review the OSHA 300 Log?  Yes  No

Did the Compliance Officer request a copy of the written Health and Safety Manual?  Yes  No

Did the Compliance Officer conduct confidential employee interviews?  
(If yes, please list the employee's names)  Yes  No

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Name the other companies inspected.

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**Closing Conference**

Name the individual(s) and their employer present at the Closing Conference.

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Did the Compliance Officer allege that violation(s) occurred?  
during the inspection?  Yes  No

If yes, name them along with the responsible contractor or employer.

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**OSHA Inspection Report  
Page 4**

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Inspection Time Duration**

Time compliance officer arrived: \_\_\_\_\_

Time opening conference began: \_\_\_\_\_

Time opening conference ended: \_\_\_\_\_

Time inspection began: \_\_\_\_\_

Time inspection ended: \_\_\_\_\_

Time closing conference began: \_\_\_\_\_

Time closing conference ended: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

A copy of this report shall be forwarded to your Safety Manager and to the API Group Corporate Safety Director.

**Sample Citation Contestation Form  
(State of Minnesota)**

**4. HOW TO CONTEST THE CITATION AND NOTIFICATION OF PENALTY**

The employer must indicate in the boxes below which part of the Citation and Notification of Penalty it wishes to contest. First the employer must identify the citations it is contesting by indicating the citation and item numbers. (For example, “**Citation 1, Item 2**”). Then the employer must indicate which parts of each item is being contested. Finally, the employer must state the reasons for contesting in the space provided below the boxes.

- Check the box CITATION, if the employer wishes to contest that the violation occurred.
- Check the box TYPE OF VIOLATION, if the employer wishes to contest the characterization of the violation as non-serious, serious, willful or repeat.
- Check the box ABATEMENT DATE, if the employer wishes to contest the date by which you must abate the violation.
- Check the box PENALTY, if the employer wishes to contest the amount on the penalty.

**FAILURE TO CHECK ANY PART WILL RESULT IN THAT PART OF THE VIOLATION BECOMING A FINAL ORDER OF THE COMMISSIONER WHICH IS NOT REVIEWABLE BY ANY COURT OR AGENCY.**

CITATION AND ITEM NUMBER	
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
	<input type="checkbox"/> Citation <input type="checkbox"/> Type of Violation <input type="checkbox"/> Abatement Date <input type="checkbox"/> Penalty
REASONS FOR CONTEST: (Additional sheets may be attached as necessary, and are considered part of this form.)	

**\*It is important to remember that if you are unsure of what you need to contest or what boxes to check, please contact APi Group Risk Management or check all the boxes. Checking all the boxes will guarantee that you will be able to dispute all parts of the citation.**

## OSHA Citation Contestation Contact Information

### **Federal OSHA**

US Department of Labor  
Occupational Safety and Health Administration  
2001 Constitution Ave.  
Washington, D.C. 20210  
PH: 800-321-6742

### **Alaska Dept. of Labor and Workforce Enforcement**

3301 Eagle St., Suite 305  
Anchorage, Alaska 99503  
PH: 800-770-4940

### **Industrial Commission of Arizona**

800 W. Washington  
Phoenix, Arizona 85007  
PH: 602-542-4411

### **California Department of Industrial Relations**

Division of Occupational Safety and Health  
1515 Clay St., Suite 1901  
Oakland, CA 94612  
PH: 510-286-7000

### **Connecticut**

\*Private sector is regulated by Federal OSHA.

### **Hawaii Dept. of Labor and Industrial Relations**

Occupational Safety and Health Division  
830 Punchbowl St.  
Honolulu, Hawaii 96813  
PH: 808-586-8844

### **Indiana Department of Labor**

State Office Building  
402 West Washington St., Room W195  
Indianapolis, IN 46204  
PH: 317-232-2378

### **Iowa Bureau of Labor**

IOSH Consultation and Education  
1000 E. Grand Ave.  
Des Moines, IA 50319  
PH: 515-281-7629

### **Kentucky Department of Labor**

Office of Occupational Safety and Health  
1047 U.S. Hwy 127 South, Suite 4  
Frankfort, Kentucky 40601  
PH: 502-564-3070

### **Maryland Department of Labor**

Occupational Safety and Health  
1100 North Eutaw St., Room 613  
Baltimore, Maryland 21201  
PH: 410-767-2190

### **Michigan Occupational Safety & Health Admin**

P.O. Box 30643  
Lansing, Michigan 48909  
PH: 517-322-1814

### **Minnesota Department of Labor and Industry**

443 Lafayette Road North  
St. Paul, Minnesota 55155  
PH: 651-284-5310

### **Nevada Division of Industrial Relations**

Occupational Safety & Health Enforcement Sec  
1301 North Green Valley Parkway, Suite 200  
Henderson, Nevada 89074  
PH: 775-687-5240

### **New Jersey**

\*Private sector is regulated by Federal OSHA.

### **New Mexico Environment Department**

Occupational Health and Safety Bureau  
525 Camino de los Marquez, Suite 3  
Santa Fe, New Mexico 87505  
PH: 505-476-8700

### **New York**

\*Private sector is regulated by Federal OSHA.

### **North Carolina Department of Labor**

4 West Edenton St.  
Raleigh, North Carolina 27601  
PH: 919-807-2900

### **Oregon Occupational Safety & Health Division**

Dept. of Consumer & Business Services  
350 Winter Street NE, Room 430  
Salem, Oregon 97301  
PH: 503-378-3272

### **Puerto Rico Safety and Health Administration**

Department of Labor, 20<sup>th</sup> Floor  
505 Munoz Rivera Ave  
Hato Rey, Puerto Rico 00918  
PH: 787-756-1100

### **South Carolina Department of Labor**

Office of OSHA Compliance  
Koger Office Park, Kingstree Building  
110 Centerview Drive  
P.O. Box 11329  
Columbia, South Carolina 29210  
PH: 803-896-7665

### **Tennessee Dept. of Labor & Workforce Dev.**

710 James Robertson Parkway  
Nashville, Tennessee 37243  
PH: 615-741-2793

## OSHA Citation Contestation Contact Information

### **State of Utah Labor Commission**

Occupational Safety and Health Division  
160 East 300 South  
P.O. Box 146650  
Salt Lake City, Utah 84114  
PH: 801-530-6848

### **Vermont Occupational Safety & Health Admin**

National Life Building – Drawer 20  
National Life Drive  
Montpelier, Vermont 05620  
PH: 802-828-2765

### **Virgin Islands**

\*Private sector is regulated by Federal OSHA.

### **Virginia Department of Labor & Industry**

Occupational Safety and Health  
Powers-Taylor Building  
13 South 13<sup>th</sup> Street  
Richmond, Virginia 23219  
PH: 804-786-2391

### **Washington Department of Labor & Industries**

Division of Occupational Safety and Health  
PO Box 44001  
Olympia, Washington 98504  
PH: 360-902-4200

### **Wyoming Department of Employment**

Worker's Safety and Compensation Division  
Cheyenne Business Center  
1510 East Pershing Boulevard  
Cheyenne, Wyoming 82002  
PH: 307-777-7700

## Pre-Bid / Pre-Job Risk Assessment

### Project Information

Date: \_\_\_\_\_ Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_

Project Estimated Value / Cost: \_\_\_\_\_ Type of Contract: \_\_\_\_\_

Location (State and City): \_\_\_\_\_

Estimated Duration of Project: \_\_\_\_\_ Estimated Completion: \_\_\_\_\_

Client or Owner: \_\_\_\_\_ Type of Project: \_\_\_\_\_

Anticipated Weather Conditions: \_\_\_\_\_

Insurance to be provided by Company or others (OCIP, CCIP): \_\_\_\_\_

If an OCIP or CCIP is used, is there a deductible associated with the Program?  
Yes \_\_\_ No \_\_\_

Does the Project have a signatory Project Agreement with a collective bargaining unit?  
Yes \_\_\_ No \_\_\_

### Project and Task Specific Information

#### Crane / Boom Activities

Will the project require the use of crane(s)?  
(If no, skip additional crane questions). Yes \_\_\_ No \_\_\_

Identify the anticipated loads of materials that will be lifted: \_\_\_\_\_

Will any load be in excess of 80% of the crane's rated load capacity? Yes \_\_\_ No \_\_\_

Estimate the value of equipment that will be lifted: \_\_\_\_\_

Will equipment manufacturers provide load weights of equipment? Yes \_\_\_ No \_\_\_

Has the equipment manufacturer identified specific pick points? Yes \_\_\_ No \_\_\_

If no, list the alternative method that will be utilized to gather this information: \_\_\_\_\_

If yes, how will that information be communicated? \_\_\_\_\_

Will the equipment be lifted over equipment or existing operations? Yes \_\_\_ No \_\_\_

What is the estimated value of equipment or business interruption? \_\_\_\_\_

Is a critical pick worksheet required for any of the anticipated lifts? Yes \_\_\_ No \_\_\_

Is a man basket going to be utilized in tandem with the crane for the work? Yes \_\_\_ No \_\_\_

Is the crane required to be equipped with an anti-two blocking device? Yes \_\_\_ No \_\_\_

Does the Company / Owner require the use of a Certified Crane Operator? Yes \_\_\_ No \_\_\_

Shall pre-lift meetings be conducted prior to lifting activities? Yes \_\_\_ No \_\_\_

Is radio communication going to be utilized for the lift? Yes \_\_\_ No \_\_\_

Is the use of separate radio frequency required or otherwise necessary? Yes \_\_\_ No \_\_\_

\*(Lifting operations shall be stopped whenever wind conditions exceed 20 m.p.h.)

**Pre-Bid / Pre-Job Risk Assessment  
Page 2**

Excavation Activities

Will the project require an excavation(s)? Yes \_\_\_ No \_\_\_

(If no, skip additional excavation questions).

List the anticipated depth of the excavation(s)? \_\_\_\_\_

Is depth  $\geq$  20'? Yes \_\_\_ No \_\_\_ (List the name of the engineering company that will design the shoring / sloping / benching / trench box protection method): \_\_\_\_\_

Has the Owner / Client disclosed underground utilities in the form of drawings or other communication? Yes \_\_\_ No \_\_\_

Name the State Agency that requires notification prior to any excavation: \_\_\_\_\_

\_\_\_\_\_

List the known soil composition and correlating OSHA classification: \_\_\_\_\_

\_\_\_\_\_

Will the excavation require barrier protection at the grade elevation perimeter? Yes \_\_\_ No \_\_\_  
(Hand digging is required within 2' of centerline of any known utility)

Has the Owner or Utility Company identified the status of the utility? Yes \_\_\_ No \_\_\_

Will operating utilities be abandoned or decommissioned? Yes \_\_\_ No \_\_\_

If yes, Owner shall decommission or perform actual de-energization of existing utilities prior to turning them over to the company.

Electrical Considerations

Are overhead power lines present in any project area that will impact our work? Yes \_\_\_ No \_\_\_

Will the work require coming closer than 10' of the overhead power line? Yes \_\_\_ No \_\_\_

If yes, list the type of protection that will be implemented to avoid contact with such power source? \_\_\_\_\_

Are overhead power lines present where we will gain access to the site for mobilizing equipment, transporting materials, tools, etc.? Yes \_\_\_ No \_\_\_

If yes, what are the dimensions of the largest piece of equipment or materials we will bring through this access point? \_\_\_\_\_

(Factor in the dimensions of the transportation equipment to see if the total height will present an encroachment with respect to the electrical utility).

If an encroachment hazard is present, is there another access point on the site that can be utilized? Yes \_\_\_ No \_\_\_

If yes, list the location: \_\_\_\_\_

Will the work require the use of Lockout / Tagout procedures? Yes \_\_\_ No \_\_\_

List the name of the person who will communicate and coordinate Lockout / Tagout activities: \_\_\_\_\_

\_\_\_\_\_

Will the work require temporary electrical services? Yes \_\_\_ No \_\_\_

Are temporary electrical panels or permanent receptacles provided? Yes \_\_\_ No \_\_\_

If electrical service is provided, is it equipped with GFCI Protection? Yes \_\_\_ No \_\_\_

If electrical service is not available, list the name of the individual or company that will take on this responsibility? \_\_\_\_\_

Will the work require welding receptacles? Yes \_\_\_ No \_\_\_

Are welding receptacles provided? Yes \_\_\_ No \_\_\_

If no, who will be responsible to provide such service? \_\_\_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 3**

Fall Protection

Will the project expose our employees to fall hazards (ex. hole openings, wall openings, decks, platforms, or other work surfaces)? Yes \_\_\_ No \_\_\_

*(If no, skip additional fall protection questions).*

Is there a reasonable method to eliminate the fall hazard (engineering controls)? Yes \_\_\_ No \_\_\_

If yes, list the type of controls or protective systems that will be utilized: \_\_\_\_\_

\_\_\_\_\_

Will our employees be engaged in leading edge work? Yes \_\_\_ No \_\_\_

If yes, list the protection method that will be utilized: \_\_\_\_\_

\_\_\_\_\_

Will our employees be subjected to work activities that would place them underneath or in close proximity to overhead work? Yes \_\_\_ No \_\_\_

If yes, list the protection method that should be utilized to protect employees from falling tools, materials, and or equipment: \_\_\_\_\_

\_\_\_\_\_

Ladders

Will portable ladders be used to access work and / or execute work? Yes \_\_\_ No \_\_\_

Identify the type of ladder to be utilized? Portable \_\_\_ Fixed \_\_\_ Extension \_\_\_ Job Made \_\_\_

Will employee's anticipated working height expose them to electrical hazards?

If yes, what methods will be used to eliminate or mitigate such hazards? \_\_\_\_\_

Will employee's anticipated working height expose them to fall hazards? \_\_\_\_\_

Will any unusual conditions be present that could compromise safe ladder usage? Yes \_\_\_ No \_\_\_

Scaffolding

Will scaffolding be utilized to perform the work? Yes \_\_\_ No \_\_\_

*(If no, skip additional scaffolding questions).*

If yes, will we be responsible for erecting, inspecting, and maintaining the scaffolding?

Yes \_\_\_ No \_\_\_

If yes, what type of scaffolding will be used? Welded End Frame \_\_\_ Tube and Coupler \_\_\_

Systems Scaffolding \_\_\_ Shoring Scaffolding \_\_\_ Suspended Scaffolding \_\_\_

What is the anticipated working height of the scaffolding? \_\_\_\_\_

Does the Owner require the scaffold to be engineered? Yes \_\_\_ No \_\_\_

If yes, who will perform this service? \_\_\_\_\_

Will the scaffold be at height in excess of 125' above its base supports? Yes \_\_\_ No \_\_\_

How many working decks or platforms are required? \_\_\_\_\_

Will the work platforms be constructed of wood planks or manufacturer's decking? \_\_\_\_\_

What method of fall protection will be implemented at working decks? \_\_\_\_\_

What type of access ladder will be utilized to access the scaffold? Extension Ladder \_\_\_

Manufacturer's Ladder \_\_\_ Fixed Stair Tower \_\_\_

Will offset landing platforms or rest areas for access ladders be required? Yes \_\_\_ No \_\_\_

What is the maximum point load that will be subjected to the scaffold? \_\_\_\_\_

Is a permit system required for scaffold use? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 4**

Aerial Lifts

Will the work require the use of aerial lifts? Yes \_\_\_ No \_\_\_  
List the type of aerial lift required: Scissor lift \_\_\_ Telescoping Boom (JLG) \_\_\_  
Articulating Snorkel Lift \_\_\_ Truck Mounted Lift \_\_\_  
What is the maximum working height the lift must reach? \_\_\_\_\_  
What are the ground conditions where the lift will be operated? \_\_\_\_\_

Is the area lift company-owned or provided by others? \_\_\_\_\_  
Will employee's anticipated working height expose them to other hazards (ex. electrical, structural, mechanical, overhead cranes, and atmospheric conditions)? Yes \_\_\_ No \_\_\_

Demolition / Material Removal / Other Hazardous Conditions

Will the project require demolition of existing facilities and or equipment? Yes \_\_\_ No \_\_\_  
*(If no, skip additional demolition questions)*

If yes, what type of structures and / or equipment will be slated for demolition? Process Piping \_\_\_  
Electrical \_\_\_ Structural \_\_\_ Concrete \_\_\_ Others \_\_\_\_\_

If the demolition is structural in nature, an engineering survey of the project will be required.  
List the name of the engineering firm that will complete this task: \_\_\_\_\_

What type of structure will be demolished? Roofing \_\_\_ Structural Steel \_\_\_ Concrete \_\_\_  
Other \_\_\_\_\_

What year was the structure originally constructed? \_\_\_\_\_

Will the structure, equipment, or material require testing for the following materials prior to demolition? Asbestos \_\_\_ Lead \_\_\_ Mercury \_\_\_ PCB's \_\_\_ Mold \_\_\_ Other \_\_\_\_\_

List the structure, equipment, or material that will require such testing: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Who will be responsible to decommission or de-energize existing equipment? \_\_\_\_\_

How will de-energized equipment be communicated to our company? \_\_\_\_\_  
\_\_\_\_\_

If process piping is scheduled for demolition, list the known materials that flowed in such piping?  
\_\_\_\_\_  
\_\_\_\_\_

If multiple employers are working on the demolition collectively, how will coordination of demolition activities be communicated to our company? \_\_\_\_\_  
\_\_\_\_\_

Are we responsible to dispose of demolished materials and or debris? Yes \_\_\_ No \_\_\_

Will be responsible to provide the appropriate debris receptacle? Yes \_\_\_ No \_\_\_

Will any of the materials demolished be considered hazardous waste? Yes \_\_\_ No \_\_\_

If yes, list the name of the Transportation Company and applicable hazardous waste landfill that will be utilized? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 5**

Process Safety Management

Will the work be performed in an area covered by OSHA's Process Safety Management Standard? Yes \_\_\_ No \_\_\_

Has the client been provided a copy of "The Owner's Process Safety Hazard Disclosure" listed in Section 4.11 of this Health and Safety Manual? Yes \_\_\_ No \_\_\_

If no, who will be responsible to get such information? \_\_\_\_\_

Will the Owner be providing our employees with a Process Safety Management training orientation session? Yes \_\_\_ No \_\_\_

If yes, when is the training conducted? (Include location): \_\_\_\_\_

\_\_\_\_\_  
If no, who will be providing instruction on Process Safety Management Policies and Procedures?  
\_\_\_\_\_

How is access to the Process Safety Management Area(s) controlled? \_\_\_\_\_

Are there any special PPE requirements to work in this area? Yes \_\_\_ No \_\_\_

If yes, list the PPE that must be utilized to work in the area? \_\_\_\_\_

\_\_\_\_\_  
Will the work require our employees to utilize continuous air monitoring equipment? Yes \_\_\_ No \_\_\_

If yes, list the chemical or hazard that we will be monitoring: \_\_\_\_\_

\_\_\_\_\_  
List the name of the contact at the Owner's facility whom we shall contact with Process Safety Management issues? \_\_\_\_\_

Fire Protection System Installation and General Fire Protection Considerations

Will a fire protection system be installed? Yes \_\_\_ No \_\_\_

List the type of system to be installed: \_\_\_\_\_

Will the work be a new expansion of the existing system or new construction? \_\_\_\_\_

If the project is a new expansion, who will coordinate de-energization of the existing system so that work can progress? \_\_\_\_\_

Does the Owner have a specific policy or procedure with respect to de-energizing the existing system? Yes \_\_\_ No \_\_\_

If yes, describe how that procedure shall be communicated: \_\_\_\_\_

\_\_\_\_\_  
Describe the temperature extremes the fire protection system will be anticipated to withstand:  
\_\_\_\_\_  
\_\_\_\_\_

Is the system and its components designed to satisfactorily withstand these extremes? Yes \_\_\_ No \_\_\_

Will portable fire extinguishers be required for the work? Yes \_\_\_ No \_\_\_

List the type, size, and number required: \_\_\_\_\_

\_\_\_\_\_  
Will any of our work generate flame, spark, extreme heat, or other source of ignition? Yes \_\_\_ No \_\_\_

Will a hot work permit be necessary to conduct work activities? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 6**

Will fire blankets or other similar flame retardant materials be required to prevent flames or sparks from being transferred by adjacent ductwork, falling onto combustible materials, entering into potentially hazardous environments such as process sewers, or damaging equipment such as electrical insulation? Yes \_\_\_ No \_\_\_

List those materials, equipment, or areas requiring such protection: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Confined Spaces

Will the work require entering a confined space? Yes \_\_\_ No \_\_\_

Does the Owner have specific confined space entry procedures that must be followed? Yes \_\_\_ No \_\_\_

Does the Owner have placards identifying confined spaces and additional, specific hazard information? Yes \_\_\_ No \_\_\_

What are the potential hazards in the confined space that we shall monitor with air analyzing equipment? \_\_\_\_\_  
\_\_\_\_\_

Does the Owner require our company to utilize their Confined Space Entry Permit? \_\_\_\_\_

Will a method of retrieval be necessary? Yes \_\_\_ No \_\_\_

If yes, what type of retrieval system will be utilized? \_\_\_\_\_  
\_\_\_\_\_

Who will perform confined space rescue in the event of an emergency? \_\_\_\_\_  
\_\_\_\_\_

Chemicals

Does the work take place next to chemical storage or hazardous material areas? Yes \_\_\_ No \_\_\_  
(If no, skip additional chemical and hazardous material questions).

If yes, list the chemicals or hazardous materials: \_\_\_\_\_  
\_\_\_\_\_

List any special PPE requirements, policies, or procedures required for working around this area:  
\_\_\_\_\_  
\_\_\_\_\_

Does the Owner have any additional special safety requirements? Yes \_\_\_ No \_\_\_

General Safety Considerations

Will the Owner be providing trash or construction debris receptacles? Yes \_\_\_ No \_\_\_

If no, who will be responsible for procuring such waste management receptacles? \_\_\_\_\_  
\_\_\_\_\_

Who will provide toilets and sanitary services for the project? \_\_\_\_\_  
\_\_\_\_\_

How many employees are anticipated to be working on the project? \_\_\_\_\_

Who will be providing temporary lighting for the project? \_\_\_\_\_  
\_\_\_\_\_

Will we be required to provide temporary heating? Yes \_\_\_ No \_\_\_

Will job-site trailers be provided for the project? Yes \_\_\_ No \_\_\_

**Pre-Bid / Pre-Job Risk Assessment**  
**Page 7**

If yes, who will be responsible for initial set-up and demobilization? \_\_\_\_\_

Who will provide applicable service utilities to the job-site trailer? \_\_\_\_\_

Will employees be provided a temporary location or mobile trailer for break time? Yes \_\_\_ No \_\_\_

Owner - Specific Requirements

Does the Owner require safety and loss control pre-qualification Information? Yes \_\_\_ No \_\_\_

List the information required to provide the Owner: \_\_\_\_\_

\_\_\_\_\_

Who will take on this responsibility? \_\_\_\_\_

Does the Owner require specific training of our employees (OSHA 10 Hour, Competent Person, etc?) Yes \_\_\_ No \_\_\_

Does the Owner require all employees to receive an Owner-specific site orientation? Yes \_\_\_ No \_\_\_

When and where does this training take place (Also include estimated time of training)? \_\_\_\_\_

\_\_\_\_\_

Does the Owner require our employee's to participate in an Owner-required Substance Abuse Program? Yes \_\_\_ No \_\_\_

Is the cost of such testing reimbursable? Yes \_\_\_ No \_\_\_

Identify the type of testing (pre-employment, post accident, random, for cause, suspicion, etc.), and the screening panel that will be utilized? \_\_\_\_\_

\_\_\_\_\_

Who will initiate contact with the APi Group Substance Abuse Program Administrator to communicate information regarding substance abuse testing? \_\_\_\_\_

List the name of the collection facility that will handle substance abuse program specimens: \_\_\_\_\_

Will the Owner be providing instruction to our employees on the specifics of designated program? Yes \_\_\_ No \_\_\_

Are employees required to be tested prior to arrival to the project? Yes \_\_\_ No \_\_\_

Does the Owner have specific PPE requirements? Yes \_\_\_ No \_\_\_

If yes, please list the requirements: \_\_\_\_\_

\_\_\_\_\_

Does the Owner require employer's to perform Job Safety Analysis (JSA's)? Yes \_\_\_ No \_\_\_

Will the Owner be providing the Company with applicable training or information (M.S.D.S.'s) for any hazardous materials that can potentially impact our employees? Yes \_\_\_ No \_\_\_

Does the Owner have specific permitting requirements? Yes \_\_\_ No \_\_\_

If yes, list such permits: \_\_\_\_\_





## Subcontractor Prequalification and Selection Page 2

Are Supervisor's held accountable for site safety performance? Yes  No   
 If yes, please explain: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Are employees held accountable for violating safety rules? Yes  No   
 If yes, please explain: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Are "Near Miss Incidents" thoroughly investigated by your company? Yes  No   
 Are the results of those investigations communicated to your employees? Yes  No   
 Do you have an officer within your company who is responsible for the overall administration of the safety program? Yes  No   
 If so, what are his/her credentials? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**OSHA Citation History**

On company letterhead, please provide a detailed OSHA inspection history, including any citations issued to your company. If you were cited, please provide any corrective action taken by your company to correct non-compliance issues or percent re-occurrence of a similar situation.

**Insurance Verification**

Please submit a Certificate of Insurance from your insurance provider for the policy year in effect. The subcontract you will enter into with the Company will identify specific insurance coverage requirements. Your insurance coverage and limits must meet and/or exceed our requirements.

**Written Safety Program**

In addition to completion and submittal of the pre-qualification questionnaire, please submit the most current copy of your written safety program for review.

Below, you will find a breakdown of all 29 CFR Part 1926 OSHA Regulations for the Construction Industry. Next to each subpart, please check the appropriate response with consideration given as to whether it pertains to your work tasks.

		Applies	N/A	Written Program
<b>Subpart C</b>	General Safety and Health Provisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart D</b>	Occupational and Environmental Controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Process Safety Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Emergency Action Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart E</b>	Personal Protective and Lifesaving Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Respiratory Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Hearing Protection Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart F</b>	Fire Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart G</b>	Signs, Signals, and Barricades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart H</b>	Materials Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart I</b>	Tools – Hand and Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart J</b>	Welding and Cutting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart K</b>	Electrical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart L</b>	Scaffolding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart M</b>	Fall Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Subcontractor Prequalification and Selection**  
**Page 3**

		Applies	N/A	Written Program
<b>Subpart N</b>	Cranes and Derricks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart O</b>	Motor Vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart P</b>	Excavations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Q</b>	Concrete and Masonry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart R</b>	Steel Erection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart S</b>	Underground Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart T</b>	Demolition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart U</b>	Blasting/Explosives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart V</b>	Power Transmission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart W</b>	Rollover Protection Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart X</b>	Stairways and Ladders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Y</b>	Diving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Subpart Z</b>	Toxic and Hazardous Substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

I attest that the above-mentioned information is a true and accurate representation of our company's comprehensive safety program. I have honestly answered all questions and have supplied all requested items in their entirety.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

# Job Hazard Analysis

Project: \_\_\_\_\_  
Date: \_\_\_\_\_  
Work Task(s): \_\_\_\_\_

Operation/Procedure	Potential Hazards/Injuries	Required/Recommended Controls



## Comprehensive Safety Audit

Job #: \_\_\_\_\_ Location: \_\_\_\_\_ Superintendent: \_\_\_\_\_

Inspector: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

Needs  
Satisfactory Improvement Comments

### Section 2 – Responsibilities, Authorities & Administrative Procedures

#### Responsibilities – Job Superintendents

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Coordinate safety with owner/client and others on jobsite                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Set proper example  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Review Company safety policy with all foremen and supervision             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Receive the jobsite safety packet, complete and post required information | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Provided jobsite employee safety training                                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Plan safety meetings and conduct weekly tool box talks                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 7. Conduct weekly site safety inspections                                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 8. Maintain forms, posters, accident reports, and safety training records    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 9. Maintain and keep updated the MSDS binder and index                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 10. Prepare and post emergency response and evacuation plan                  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 11. Report accidents to owner/client   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

#### Responsibilities – Foreman

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Continuously inspect work area and take corrective action      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Set a proper example for a high standard of safety             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Enforce safety rules   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Conduct safety training of employees and record tool box talks | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Be familiar with jobsite emergency procedures                  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

#### Responsibilities – Employees

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Adhere to safety policy and performing work in a safe manner | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Using protective clothing and equipment required by jobsite  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Participating in tool box talks and safety meetings          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

### Section 3 – General Safety Provisions

#### 3.2 - OSHA Records

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Corporate Safety Manual present and updated | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Handbooks and bulletins                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Safety meeting minutes                      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Records of weekly tool box talks            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Safety training records                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Jobsite safety inspection records           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 7. Injury reports                              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 8. OSHA 300 Form posted                        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

#### 3.7 - Subcontractor Safety

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Subcontractor questionnaire on file | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
|--|--------------------------|--------------------------|-------|

#### 3.11 - Emergencies

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Emergency/Evacuation has been established and posted             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Employees/subcontractors know the evacuation route               | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Employees/subcontractors know emergency numbers                  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. All have been made aware of any special hazards in the workplace | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Training has been conducted on hire-in and documented            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Comprehensive Safety Audit**  
Page 2

Satisfactory   Needs Improvement   Comments

**Section 4 – Occupational Health and Environmental Controls**

**4.6 Hazard Communication**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Proper training conducted and documented          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Proper labeling of containers                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Haz-Com file or binder with MSDS sheets and index | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Proper storage                                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Proper use of personnel protective equipment      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**4.7 – Lead Safety**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Workplace has been evaluated for possible lead exposure | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Training has been conducted and document, as necessary  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**4.11 - Housekeeping**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Work areas and walkways clear           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Break areas clean                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate containers provided/used       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Adequate lighting                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Welding leads and cords strung overhead | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**4.13 – Bloodborne Pathogens**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. First aid kit is equipped with a bloodborne pathogens kit | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Training has been conducted and documented                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Contact with any type of bodily fluid has been documented | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**4.14 - Confined Space Procedures**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Are permits filled out and posted                        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Are authorized entrant logs posted                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Are placards posted                                      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Have the proper tests been performed                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Proper equipment and personnel protective equipment used | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Proper training given and documented                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 5 – Personal Protective Equipment**

**5.1 – Personnel Protective Equipment**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Hard hats worn at all times (Brim Forward) | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Safety glasses worn at all times           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Work gloves, when required                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Work shoes/boots adequate                  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Adequate and proper clothing               | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Hearing protection, when required          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**5.2 - Respiratory Protection**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Proper atmospheric testing done      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Proper respirator supplied and used  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Medical examinations performed       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Training conducted and documented    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Fit testing conducted and documented | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Proper cleaning and storage          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 6 – Fire Protection**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Adequately serviced fire extinguishers              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Hydrants, hoses, extinguishers unobstructed         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Fire evacuation plans given to personnel and posted | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Proper safety cans used                             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Proper storage                                      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Comprehensive Safety Audit**  
**Page 3**

**Needs**  
Satisfactory Improvement Comments

**Section 8 – Rigging**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Has all equipment been inspected prior to use   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Recommended safe load capacity on all equipment | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. All slings and webs properly identified         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Lifting area cordon off                         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Job rules posted by material hoist              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Is overhead protection adequate                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 9 – Hand and Power Tools**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Adequate inspection and maintenance | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. All required guards in place        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Positive on/off control switches    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 10 – Welding & Cutting**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Cylinders properly stored and secured                         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Hoses in good repair  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate inspection for fire hazards                          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Flash suppressors installed where applicable                  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Hot Work Permits  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Cables free from splices or repairs 10' from electrode holder | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 7. Spliced and connectors well insulated                         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 8. Adequate grounding  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 9. Adequate fire extinguishers near by                           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 10. Adequate ventilation   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 11 – Electrical Safety**

**Section 11.2 – Ground Fault Protection**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Adequate ground fault circuit interrupters | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Ground fault testing/color code program    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Proper lockout/tagout                      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Proper signs and warnings posted           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Proper cords and cables                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Proper lighting                            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 11.3 – Lockout/Tagout**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Lockout/Tagout log maintained              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Adequate lockout/tagout devices            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate training conducted and documented | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 12 – Scaffolding**

**12.1 – Scaffolding**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Proper construction/condition                   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Properly secured                                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate rails, toeboards, midrails, and screen | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Ladders properly constructed                    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Proper training given and documented            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**12.2 – Aerial Lifts**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Equipment inspected and maintained    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Adequate cables, slings, and shackles | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Inspection log on file                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Adequate capacity                     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Properly set-up/outriggers            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Adequate hand voice communications    | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 7. Adequate training/records             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Comprehensive Safety Audit**  
**Page 4**

**Needs**  
**Satisfactory    Improvement    Comments**

**Section 13 – Fall Protection**

- |                                      |                          |                          |       |
|--------------------------------------|--------------------------|--------------------------|-------|
| 1. Harnesses & Lanyards              | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Fall protection scaffolds         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Fall protection systems           | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Anchorage – points satisfactory   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Training conducted and documented | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 14 – Cranes**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Inspection logs for daily and annual inspections on file  | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Adequate capacity/proper usage                            | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Adequate hand/voice communication and illustration posted | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Proper fire extinguishers                                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Properly set-up/barricaded                                | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Hook inspection current                                   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 15 – Fleet Safety**

- |  |                          |                          |       |
|--|--------------------------|--------------------------|-------|
| 1. Driver's licenses checked/recorded      | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Proper training and documented          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Equipment maintained and in good repair | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 16 – Excavations & Trenching**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Utilities located & appropriate owner's & agencies contacted | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Competent person assigned to the work                        | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Permit completed   | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Sloping, benching, or shoring method selected & followed     | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Access/egress provided                                       | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Section 20 – Stairways and Ladders**

- |   |                          |                          |       |
|---|--------------------------|--------------------------|-------|
| 1. Stairways installed where required         | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 2. Stairways properly constructed             | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 3. Proper ladders per ANSI A14.1-2 and 5 used | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 4. Extend 36" above top landing               | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 5. Properly tied off                          | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| 6. Proper training documented                 | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

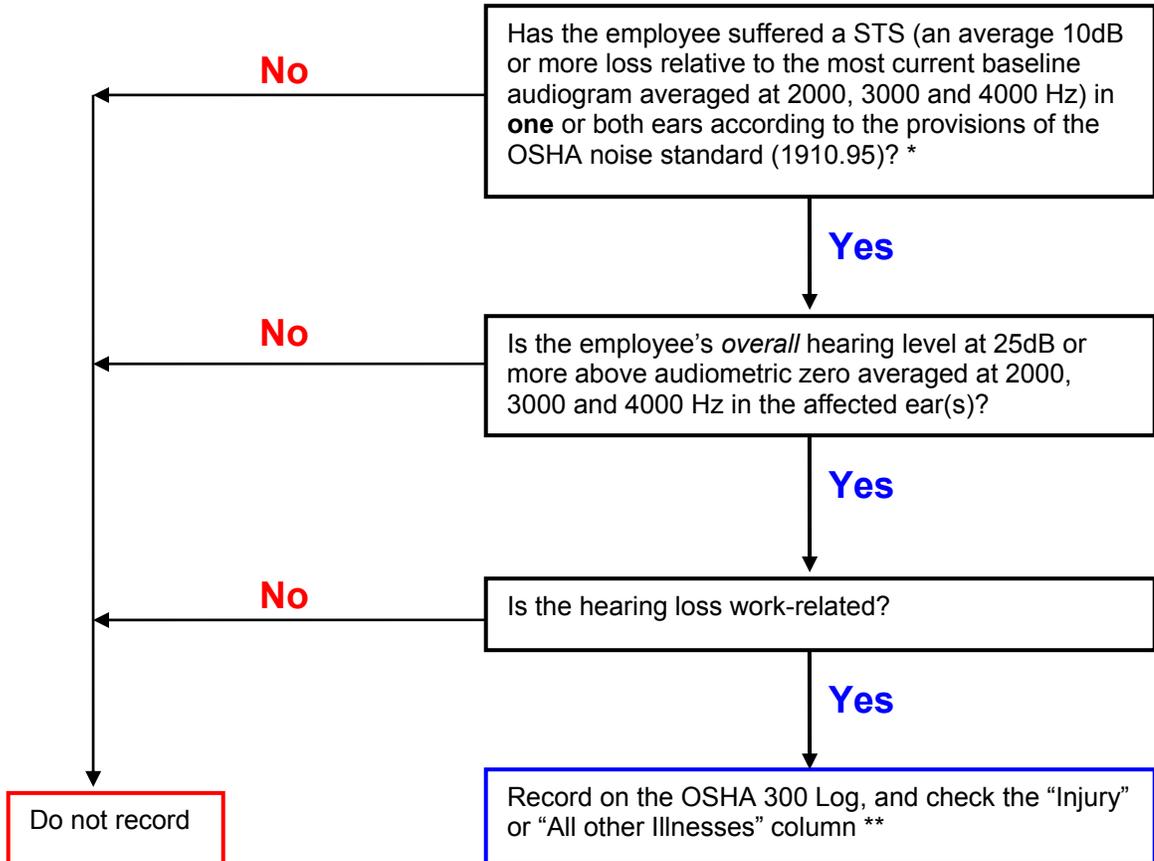
Name of Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

Distribution:  
  
 Project Manager  
 Superintendent  
 File



## Standard Threshold Shift (STS) “Decision Tree”

Using this ‘Decision Tree’ to determine whether the results of an audiometric exam given on or after January 1, 2003 reveal a recordable STS.

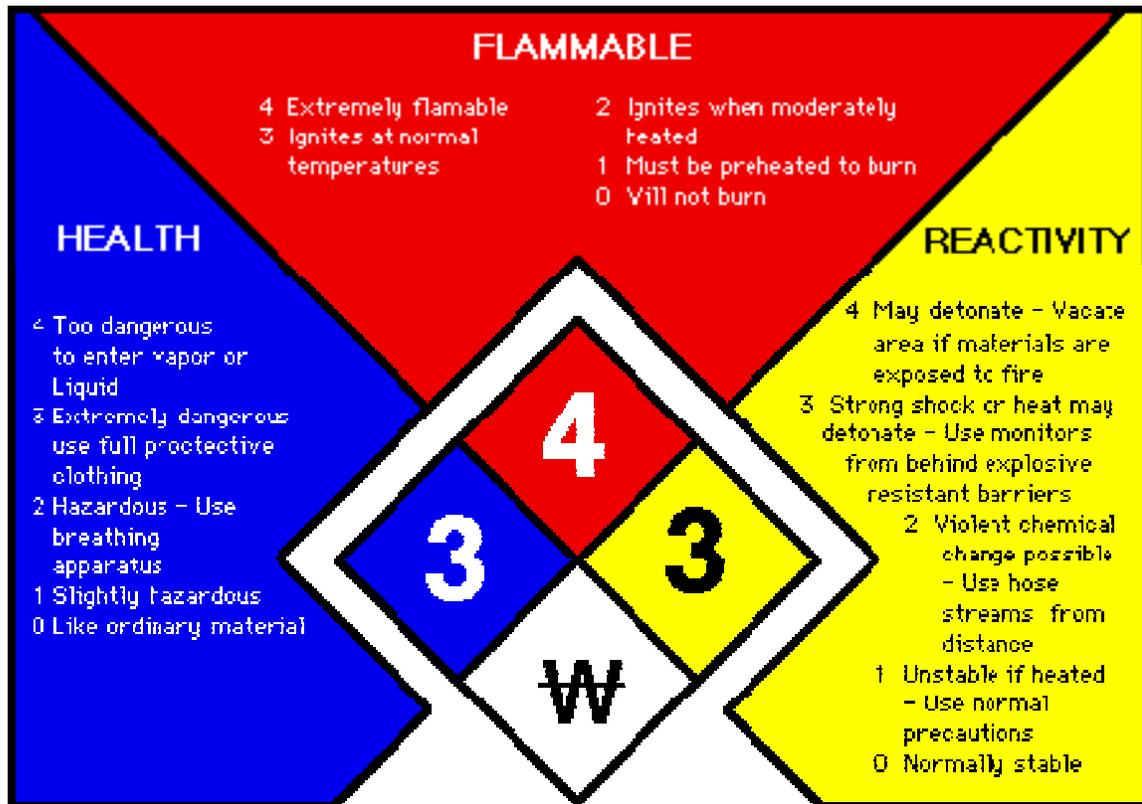


Note: In all cases, use the most current baseline to determine recordability as you would to calculate a STS under the hearing conservation provisions of the noise standard (1910.95). If an STS occurs in only one ear, you may only revise the baseline audiogram for that ear.

\* The audiogram may be adjusted for presbycusis (aging) as set out in 1910.95.

\*\* A separate hearing loss column on the OSHA 300 Log beginning in Calendar year 2004.

## NFPA Fire Diamond



# HMIS Labeling System



**HEALTH**

- 0 – No significant risk to health
- 1 – Irritation or minor reversible injury possible
- 2 – Temporary or minor injury may occur
- 3 – Major injury likely unless prompt action is taken and medical treatment is given
- 4 – Life threatening, major, or permanent damage may result from single or repeated

**FLAMMABILITY**

- 0 – Will not burn
- 1 – Above 200 F
- 2 – Below 200 F
- 3 – Below 100 F
- 4 – Below 73 F

**REACTIVITY**

- 0 – Stable
- 1 – Unstable if heated
- 2 – Violent chemical change
- 3 – Shock and heat may detonate
- 4 – May detonate

**PERSONAL PROTECTION**

A letter from A to X indicates the level of Personal Protective Equipment (PPE) required

## Asbestos Information Document

All information listed on this form is required by federal and state environmental protection and employee health and safety laws and regulations. This is public information available to anyone. Failure to obtain this information as listed requires written authorization from both the operations vice president and APi Group, Inc. Risk Management before accepting this work.

### 1. All Buildings

- a. Was building constructed before 1980? Yes No

*If yes, assume **ALL** thermal insulation, sprayed or troweled on acoustical insulation or fire proofing, floor tiles, mastic, wallboard, roofing materials contains asbestos unless you or the building owner can prove otherwise by methods meeting 29 CFR 1926.1101(k)(5).*

- b. Request and obtain copies of all NESHAP notification (if any) regarding removal. National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 Subpart M regulations require before any renovation, remodeling, or removal activity involving the disturbance of AC can be undertaken, the state agency responsible for Clean Air Act enforcement must be notified.

Copies attached for all notifications and related documentation. Yes No

### 2. School Buildings (Public and Private)

- a. Request and obtain a copy of the “**Asbestos Building Inspection Report**”

*The asbestos materials inspection that is required under EPA’s Asbestos Hazard Emergency Response Act (AHERA) – 1986 rules – 40 CFR 763.*

Attached is your copy of the:

- i. “**Asbestos Building Inspection Report**”

*This includes: sampling scheme, sample locations, name of the inspector, analysis report of all samples, classification of all areas as ACM containing or non-ACM containing, and assessment of physical condition of the material.*

**This inspection report must be redone every 2 years.**

1. **Your walk-through inspection findings of the building(s).** Yes No
2. **Accredited Management Planner review of the inspection.** Yes No

*This is a more detailed review of the facility than the initial inspection. This report details the risk for building occupants. The management planner will recommend a response option for each area containing ACM. This report is usually wrapped in with the initial inspection report. **It is a public record.***

**Asbestos Information Document**  
**Page 2**

**3. Commercial and Public Buildings**

- a. Request and obtain a copy of ACM/PACM survey as required by 29 CFR 1926.1101.

*Before work begins, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the worksite.*

Copy of ACM/PACM survey attached. Yes No

- b. Request and obtain a copy of written notice from the building or facility owner that identifies the presence, location and quantity of ACM/PACM at the worksites in their building or facilities.

Copy of written notice attached. Yes No

**4. Privately Owned Buildings (Residential Homes and Apartment Complexes, etc.)**

***Is this section applicable?*** Yes No

- a. Request and obtain a copy of ACM/PACM survey as required by 29 CFR 1926.1101.  
*Before work begins, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the worksite.*

Copy of ACM/PACM survey attached? Yes No

- b. Request and obtain a copy of written notice from the building or facility owner that identifies the presence, location and quantity of ACM/PACM at the worksites in their building or facilities.

Copy of written notice attached? Yes No

- c. Attach a copy of an Indemnity Agreement from an authorized representative of the property confirming the existence or non-existence of asbestos in any part of the building including but not limited to:

1. Floor tile or ceiling tile and their mastic.
2. Wallboard, sprayed or troweled-on acoustical materials.
3. Insulation materials in the walls, ceilings, floors, etc.
4. Thermal insulation (TSI) on heat lines/systems.
5. Other areas which may be impacted by the installations, service or maintenance of the fire protection/alarm systems work contracted for.

Copy of written Indemnity Agreement attached? Yes No

**Estimator's name:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Branch:** \_\_\_\_\_

**For each category where required information is not obtained and attached to this document, written authorization/approval must be attached to this form before accepting this work. For information and assistance in meeting this company's qualification requirements, please contact the APi Group, Inc. Risk Management Department's Safety Manager.**



## Owner's Process Safety Management Disclosure

### Project Information

Project Name:	Date:
Project Contract or Bid Number:	Location:
Project Scope:	

### Hazard Information

1. Is this project considered "Process Safety" under OSHA Standard 1910.119? .....	Yes <input type="radio"/>	No <input type="radio"/>
2. If "yes"		
a. Will work be on or adjacent to hazardous processes regulated under OSHA 1910.119? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. Is notification of the potential fire, explosion, or toxic release hazards related to our work and the covered processes is attached.....	Yes <input type="radio"/>	No <input type="radio"/>
c. Are the applicable provisions of your OSHA required Emergency Evacuation Plan attached?.....	Yes <input type="radio"/>	No <input type="radio"/>
d. Are the controls for our employee entrance, presence, and exit in covered process areas attached? .....	Yes <input type="radio"/>	No <input type="radio"/>
3. Asbestos		
a. Was the facility, or specific area where we will be performing work built prior to 1980? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. Does our work area contain any Asbestos Containing Materials (ACM) or PACM Materials as defined in OSHA 1926.1101? .....	Yes <input type="radio"/>	No <input type="radio"/>
c. If "yes", who will be providing Asbestos Abatement Services:		
d. Will there be Asbestos Abatement activities in other areas of the facility during the time of our work? .....	Yes <input type="radio"/>	No <input type="radio"/>
4. Other Hazards		
a. Is there a known Arsenic exposure hazard at this facility or in our workplace? .....	Yes <input type="radio"/>	No <input type="radio"/>
b. If "yes" – is explanation attached? .....	Yes <input type="radio"/>	No <input type="radio"/>
c. Is there a know lead exposure hazard at this facility or in our workplace?	Yes <input type="radio"/>	No <input type="radio"/>
d. If "yes" is an explanation attached?.....	Yes <input type="radio"/>	No <input type="radio"/>
e. Are there any other Owner, or Owner's Agent identified hazardous materials associated with this project (See listing of OSHA regulated Hazardous Chemicals on the reverse side of this form)? .....	Yes <input type="radio"/>	No <input type="radio"/>
f. If "yes" please provide detail in attachment.		
5. Personnel		
a. Who is the individual with whom we interface on process safety, or other safety issues, and to whom we forward notifications of any injury or illness of our employee(s)?		
b. The proposed method of evaluating our performance in meeting our obligations under the OSHA Process Safety laws is attached, or has been discussed.....	Yes <input type="radio"/>	No <input type="radio"/>

### Signature

Completed By:	Title:	Date:
---------------	--------	-------

## Hepatitis B Virus Vaccination 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 B vaccine, at no charge to myself. However, I declined the 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 wish to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to myself.

\_\_\_\_\_  
*Employee Signature*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Employee Name*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Witness Signature*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Witness Name*

\_\_\_\_\_  
*Date*

*This form is required by 29 CFR 1910.1030, Appendix A*



## Confined Space Entry Permit Page 2

**Confined Space is an Enclosed Space Which:**

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, storage bins, hoppers, vaults, pits, and dike areas);
- Is not designed for continuous employee occupancy; and,
- Has one or more of the following characteristics:
  - Contains or has known potential to contain a hazardous atmosphere;
  - Contains a material with the potential to contain a hazardous atmosphere;
  - Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls, or a floor which slopes downward and tapers to a smaller cross-section; or,
  - Contains any other recognized serious safety or health hazard.

### Safety Planning Meeting

PLANNING	DISCUSSION
PLAN OVERALL PROJECT	MINIMUM REQUIREMENTS: <ul style="list-style-type: none"> <li>• Work to be performed</li> <li>• Identify ALL hazards</li> <li>• Secure Area (post and flag)</li> <li>• Lockout - Tagout - Try Out</li> <li>• Lines Broken / Capped / Blanked</li> <li>• Purge - flush and vent</li> <li>• Ventilation</li> <li>• Emergency</li> <li>• Rescue Procedures</li> <li>• Gas testing - Continuous</li> <li>• Breathing Apparatus (SCBA or Air-Line Respirators)</li> <li>• Emergency Oxygen</li> <li>• Constant Communications with Entry Personnel</li> </ul> SAFETY STANDBY PERSON (ATTENDANT) REQUIRED FOR ALL 'PERMIT REQUIRED' CONFINED SPACE WORK
PLAN FOR EMERGENCY	DETERMINE OTHER REQUIREMENTS: <ul style="list-style-type: none"> <li>• Responsibilities</li> <li>• Fire Extinguishers</li> <li>• Review ALL SJP's</li> <li>• Lighting (Explosion-proof)</li> <li>• Ground Fault Circuit Interrupters/Low Voltage</li> <li>• Non-Spark Producing Tools</li> <li>• Air Purifying Requirements</li> <li>• Protective Clothing</li> <li>• Head / Eye / Hearing Protection</li> <li>• Retrieval Equipment</li> <li>• Type of Instruments Used</li> <li>• Qualified Gas Tester</li> <li>• Annual Employee Training</li> <li>• Burning and Welding Permit required in designated High Fire Hazard Areas</li> </ul>
PLAN FOR RESCUE *	MINIMUM REQUIREMENTS: <ul style="list-style-type: none"> <li>• Designate a secure area (post and flag)</li> <li>• Emergency Medical / Injury Procedures</li> <li>• Emergency Escape Procedures</li> <li>• Emergency Fire Procedures</li> </ul> OTHER REQUIREMENTS: <ul style="list-style-type: none"> <li>• Tripod Emergency Retrieval Unit</li> <li>• Lifelines, any appropriate Retrieval Equipment</li> <li>• Stretcher, Stokes Basket, Blankets, etc.</li> </ul> * DO NOT ENTER AN EXPLOSIVE OR OXYGEN ENRICHED ATMOSPHERE UNLESS RESCUE IS REQUIRED.
PLAN FOR GAS TESTS	MINIMUM TESTS - REQUIRED <ul style="list-style-type: none"> <li>• Confined Space Entry: (CONTINUOUS MONITORING**)</li> <li>• Oxygen Deficiency - Minimum 19.5% **</li> <li>• Oxygen Enrichment - Maximum 22% **</li> <li>• Combustibles - Maximum 10% LEL **</li> <li>• Toxic - (CO Gas 25 PPM PEL)</li> <li>• Complete Entry Permit and Post on the Job / Work Site</li> </ul> DETERMINE: Need to Test for Other Gases. REMEMBER: ALL CONFINED SPACES REQUIRE CONTINUOUS MONITORING. REMEMBER: ALL instruments used for testing must be field calibrated once each day or prior to each use whichever is least frequent, and bench calibrated at least once each month. REMEMBER: Even with continuous monitoring you must take readings from the instrument and RECORD the results on the PERMIT AT LEAST ONCE EVERY TWO HOURS. NOTE: After the job has been completed, the ENTRY PERMIT (S) MUST be kept on file for a minimum of 1 year and the pink copy to the Safety Office.
<b>REMEMBER</b>	
Planning meetings will vary according to size and scope of project. Meetings must be held with ALL affected personnel prior to starting work. Safe entry must be determined for each Confined Space Entry project by considering physical conditions and activities that could occur during work. For further assistance, refer to the Company "Confined Space Entry Procedures, Section 4.7."	





## Confined Space Classification Table Chart CS-1

PARAMETERS	Class I	Class II	Class III
<b>Characteristics</b>	Atmosphere where dangerous air Contamination, oxygen deficiency, or Oxygen enrichment cannot develop. Potential hazard. Requires no Modification of work procedures. Standby rescue procedures.	Atmosphere free of dangerous air contamination, oxygen deficiency, or Oxygen enrichment has been verified. Dangerous, but not immediately life threatening. Rescue procedures require fully equipped life support equipment.	Atmosphere free of dangerous air contamination, oxygen deficiency, or Oxygen enrichment cannot be verified. Immediately dangerous to life or health. Entry and rescue procedures require individuals to be fully equipped with life support equipment.
<b>Oxygen</b>	19.5% to 21.4%	16.1% to 19.4%	16% or less
<b>Flammability Characteristics</b>	10% LEL or less	10% to 19% LEL	20% or greater of LEL
<b>Procedures</b>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Space tested for oxygen and air contaminates.</li> <li>3. Monitored or ventilated continuously.</li> <li>4. Standard rescue procedures.</li> <li>5. No standby required.</li> </ol>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Space tested for oxygen and air contaminates.</li> <li>3. Monitored continuously.</li> <li>4. Standby required.</li> <li>5. Maintain communications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Permit required.</li> <li>2. Approved respirator.</li> <li>3. Safety belt or harness.</li> <li>4. Hoisting devices.</li> <li>5. Standby required                             <ul style="list-style-type: none"> <li>~ Maintain communication.</li> <li>~ SCBA available.</li> <li>~ Alert rescue team before entering.</li> </ul> </li> <li>6. Trained employee in CPR/First Aid.</li> </ol>
<b>Toxicity</b> <b>**IDLH</b>	Hydrogen Sulfide      0 ppm Carbon Monoxide      0 ppm	Hydrogen Sulfide      1 – 10 ppm Carbon Monoxide      1 – 35 ppm	Hydrogen Sulfide      11 – 15 ppm ~ Greater than 15 ppm is IDLH Carbon Monoxide      36 – 200 ppm ~ Greater than 200 ppm is IDLH

ppm = parts per million

\*\* Immediately Dangerous to Life or Health – Class A only

# Environmental Safety

## EPA Regions and Contact Information

### Region 1: New England

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

#### Mailing Address

EPA New England Region 1  
1 Congress Street Suite 1100  
Boston, MA 02114-2023

Customer Service Center  
888-372-7341

Environmental Emergencies: 800-424-8802

### Region 2:

New Jersey, New York, Puerto Rico, US Virgin Islands

#### Mailing Address:

EPA Region 2  
290 Broadway  
New York, NY 10007-1866

Customer Service  
212-637-3000

Environmental Emergencies: 800-424-8802

### Region 3: Mid-Atlantic

West Virginia, Virginia, Pennsylvania, Delaware, Maryland, Washington D.C.

#### Mailing Address

EPA Region 3  
1650 Arch Street  
Philadelphia, PA 19103-2029

Customer Service Center  
215-814-5000

Environmental Emergencies: 800-424-8802

### Region 4:

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

#### Mailing Address:

US EPA Region 4:  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, GA 30303-8960

*Western States Fire Protection*

Customer Service Center:  
800-241-1754

Environmental Emergencies: 800-424-8802

### Region 5:

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

#### Mailing Address:

US EPA Region 5  
77 West Jackson Blvd.  
Chicago, IL 60604

Customer Service Center: 800-621-8431

Environmental Emergencies: 800-424-8802

### Region 6:

Arkansas, Louisiana, Oklahoma, New Mexico, Texas

#### Mailing Address:

EPA Region 6:  
1445 Ross Avenue Suite 1200  
Dallas, TX 75202

Customer Service Center: 214-665-6444

Environmental Emergencies: 800-424-8802

### Region 7:

Iowa, Kansas, Missouri, Nebraska

#### Mailing Address:

US EPA Region 7  
901 North 5<sup>th</sup> Street  
Kansas City, KS 66101

Customer Service Center: 800-223-0425

Environmental Emergencies: 800-424-8802

*FORM 4.16-01 (08)*

## Environmental Safety

### **Region 8:**

Colorado, Montana, North Dakota, South  
Dakota, Utah, Wyoming

Mailing Address:  
US EPA Region 8  
999 18<sup>th</sup> Street Suite  
Denver, CO 80202

Customer Service Center: 800-227-8917

Environmental Emergencies: 800-424-8802

### **Region 9:**

Arizona, California, Hawaii, Nevada, Pacific  
Islands

Mailing Address:  
US EPA Region 9  
75 Hawthorne Street  
San Francisco, CA 94105

Customer Service Center: 866-372-9378

Environmental Emergencies: 800-424-8802

### **Region 10: Pacific Northwest**

Washington, Idaho, Oregon, Alaska

Mailing Address:  
US EPA Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

Customer Service Center: 800-424-4372

Environmental Emergencies: 800-424-8802

### **Canada: Environment Canada**

Inquiry Centre  
70 Cremazie St.  
Gatineau, Quebec  
K1A0H3  
819-997-2800 or 1-800-668-6767



## Hexavalent Chromium Air Monitoring Checklist

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### 5.0 Air Movement and Air Movers (make notes on sketch, if needed)

- 5.1 Is point of operation ventilation available? Yes  No   
 If yes, is it used properly? Yes No  
 Distance from point of welding to point of ventilation: \_\_\_\_\_
- 5.2 Is natural ventilation occurring? Yes No  
 If yes, describe ventilation: \_\_\_\_\_  
 (including direction relative to welder's breathing zone)
- 5.3 Is mechanical general ventilation being used? Yes No  
 If yes, describe ventilation: \_\_\_\_\_  
 (including exhaust rate and/or number of room air changes per hour, if known)
- 5.4 Are cooling fans or makeup air units being used? Yes No  
 If yes, describe air flow: \_\_\_\_\_  
 (including direction relative to welder's breathing zone)

### 6.0 Welding Process

- 6.1 Type of welding process being used (check one):  
 Shielded Metal Arc Welding (SMAW)                      Gas Tungsten Arc Welding (GTAW)  
 Gas Metal Arc Welding (GMAW)                      Flux-core Arc Welding (FCAW)  
 Plasma Arc Welding (PAW)                              Submerged Arc Welding (SAW)  
 Other (list): \_\_\_\_\_
- 6.2 Type of base metal being used (check one):  
 Stainless steel    Carbon steel  
 Mild steel    Chrome-coated metal  
 Other (list): \_\_\_\_\_
- 6.3 Description of welding activities/processes (use separate sheet or activity diary)  
 (i.e., What was being welded? Was it fillet, groove or flange welding, etc.?)  
 \_\_\_\_\_
- 6.4 Thickness of the base metal (i.e. 18 gauge, 10 gauge, etc.): \_\_\_\_\_
- 6.5 Reported ingredients of the base metal (i.e., x% chrome, x% nickel, etc.): \_\_\_\_\_
- 6.6 Was a shielding gas used? Yes Type? \_\_\_\_\_ No
- 6.7 AWS electrode/wire classification and reported ingredients of the consumable:  
 \_\_\_\_\_ (% chromium)

**EMPLOYER: PLEASE FILL OUT THE FOLLOWING INFORMATION**

Company's Name: \_\_\_\_\_ Job-Site Name & No. \_\_\_\_\_  
 Address: \_\_\_\_\_ Job-Site Address: \_\_\_\_\_  
 Co. Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Site Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Employee's Name: \_\_\_\_\_  
 Employee's SSN: \_\_\_\_\_

**Check Type of Respirator(s) to be Used** (Check  All That Apply)

Air-purifying (Non-powered)       Air purifying (powered)  
 Atmosphere Supplying Respirator  
 Combination Airline and SCBA  
 Continuous Flow Respirator  
 Open Circuit SCBA       Closed Circuit SCBA  
 Dust Mask     1/2 Face with Canisters     Full Face With Canisters

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Cartridge: \_\_\_\_\_

**Special Work Conditions** (Check  All That Apply)

High Places       Temperature Extremes       Mostly Cold  
 Enclosed Places     Protective Clothing       Mostly Hot  
 Other(s): \_\_\_\_\_

Questionnaire Will Be:     Faxed     Mailed     E-Mailed  
 Other: \_\_\_\_\_

**Extent of Usage** (Check  All That Apply)

On a daily basis \_\_\_\_\_ Total Hours  
 Occasionally—but not more than twice a week \_\_\_\_\_ Total Hours  
 Rarely—or for emergency situations only \_\_\_\_\_ Total Hours

**Expected Physical Effort Required** (Check  All That Apply)

Light       Moderate       Heavy

**Extent of Usage** (Check  All That Apply)

Arsenic       Benzene  
 Coke Oven       Cotton Seed/Dust  
 Cadmium       Formaldehyde  
 Methylene Chloride       Lead  
 Textiles       Chromium  
 Welding Fumes       Concrete/Silica  
 Other(s): \_\_\_\_\_

EVALUATION AUTHORIZATION BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 Signature of Employer Representative

**NOTE TO EMPLOYEE AND EMPLOYER: DO NOT WRITE BELOW THIS LINE—FOR USE BY THE PLHCP ONLY**

**PLHCP WRITTEN STATEMENT FOR THE USE OF RESPIRATORS**

This report may contain confidential medical information and is intended for the designated employer contact only. The American with Disabilities Act (ADA) imposes very strict limitation on the use of information obtained during physical examination of qualified individuals with disabilities. All information must be collected and maintained on separate forms, in separate files, and must be treated as a confidential medical record. With the following exceptions:

- Supervisors and Managers may be informed about necessary restrictions on the work or duties of an employee and necessary accommodations.
- First Aid and Safety Personnel may be informed, when appropriate, if the disability might require emergency treatment.

**Based upon my findings, I have determined that this individual** (Check  All That Apply)

- Further Testing/Evaluation is Required  
 Class I – No Restrictions on Respirator Use  
 Class II – Some Specific Use Restrictions     Emergency Response or Escape Only     Other: \_\_\_\_\_  
 Class III – Respirator Use is **NOT PERMITTED**

**Physician or other Licensed Healthcare Professional** (Check  All That Apply)

- The above individual **HAS** been examined for respirator fitness in accordance with 29 CFR 1910.134. This limited evaluation is specific to respirator use only. Employees should be instructed to report any difficulties in using respirator or change of any physical status to their Supervisor or the PLHCP. This evaluation included the Respiratory Questionnaire outlined in 29 CFR 1910.134.
- I **HAVE NOT** examined the above individual for respirator fitness. The employee's medical evaluation consisted of a review of OSHA's Medical Evaluation Questionnaire in Appendix C Part A Section 2. In accordance with 29 CFR 1910.134, this limited evaluation is specific to respirator use only. Employees should be instructed to report any difficulties in using respirator or change of any physical status to their Supervisor or PLHCP. This evaluation included the Respiratory Questionnaire outlined in 29 CFR 1910.134.
- In accordance with specific OSHA requirements, I have informed the above named individual of any positive results of this evaluation regarding respirator or respirator use or further evaluation.

PLHCP's Signature \_\_\_\_\_

PLHCP's Name Printed \_\_\_\_\_

Physician's License Number (Optional in Most States)  
 04/29/02

Date of Evaluation \_\_\_\_\_

Expiration Date \_\_\_\_\_



**PART A-SECTION 1**

**MUST BE FILLED OUT ON EACH PAGE**

Name (last, first, middle)		Social Security Number:	Today's Date:
Age (to nearest year):	Sex : (check one) <input type="checkbox"/> Male <input type="checkbox"/> Female	Job Title:	Home Telephone:
Height: _____ feet _____ inches	Weight: _____ lbs.		

Can you read?  Yes  No

Your employer must allow you to answer this questionnaire during normal working hours at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers. This questionnaire will be administered and reviewed by the health care professionals at: **Dickinson Occupational Clinic, 1711 S. Stephenson Avenue, Suite 200, Iron Mountain, MI 49801-4696, 906-779-7111 or 800-262-4155, Fax: 906-779-7115**

Please answer the following questions:

1. Do you know how to contact the health care professional who will review this questionnaire?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Indicate the type of respirator you will use (you can select more than one category): N, R, or P disposable respirator (filter-mask, non-cartridge type only). (Specify) _____ Other type (for example, half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus: (Specify) _____		
3. Have you ever worn a respirator? If yes, what type(s): _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No

<b>PART A-SECTION 2</b>	<b>If yes, please comment.</b>	
1. Do you currently smoke tobacco or have you smoked tobacco in the last month?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Have you ever had the following conditions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
a. Seizures (fits)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
b. Diabetes (sugar disease)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
c. Allergic reactions that interfere with your breathing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
d. Claustrophobia (fear of closed-in places)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
e. Trouble smelling odors?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<b>3. PULMONARY OR LUNG PROBLEMS: Have you ever had the following pulmonary or lung problems?</b>	<b>If yes, please comment.</b>	
a. Asbestosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
b. Asthma?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
c. Chronic bronchitis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
d. Emphysema?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
e. Pneumonia?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
f. Tuberculosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
g. Silicosis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
h. Pneumothorax (collapsed lung)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
i. Lung cancer?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
j. Broken ribs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
k. Any chest injuries or surgeries?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
l. Any other lung problem that you've been told about?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<b>4. DO YOU CURRENTLY HAVE ANY OF THE FOLLOWING SYMPTOMS OF PULMONARY OR LUNG ILLNESS?</b>	<b>If yes, please comment.</b>	
a. Shortness of breath?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
c. Shortness of breath when walking with other people at an ordinary pace on level ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
d. Have to stop for breath when walking at your own pace on level ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
e. Shortness of breath when washing or dressing yourself?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
f. Shortness of breath that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
g. Coughing that produces phlegm (thick sputum)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
h. Coughing that wakes you early in the morning?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
i. Coughing that occurs mostly when you are lying down?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
j. Coughing up blood in the last month?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
k. Wheezing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
l. Wheezing that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
m. Chest pain when you breathe deeply?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
n. Any other symptoms that you think may be related to lung problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No



**MUST BE FILLED OUT ON EACH PAGE**

Name (last, first, middle)		Social Security Number:		Today's Date:
<b>5. CARDIOVASCULAR OR HEART PROBLEMS:(Have you ever had any of the following cardiovascular/heart problems)?</b>				<b>If yes, please comment.</b>
a. Heart attack?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Stroke?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Angina?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Heart failure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Swelling in your legs or feet (not caused by walking)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Heart arrhythmia? (Heart beating irregularly)	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
g. High blood pressure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
h. Any other heart problem that you've been told about?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>6. HAVE YOU EVER HAD ANY OF THE FOLLOWING CARDIOVASCULAR OR HEART SYMPTOMS?</b>				<b>If yes, please comment.</b>
a. Frequent pain or tightness in your chest?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Frequent pain or tightness in your chest during physical activity?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Pain or tightness in your chest that interferes with your job?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. In the past two years, have you noticed your heart skipping or missing a beat?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Heartburn or indigestion that is not related to eating?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Any other symptoms that you think may be related to heart or circulation problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>7. CURRENT MEDICATIONS: Do you currently take medications for any of the following problems?</b>				<b>If yes, please comment.</b>
a. Breathing or lung problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Heart trouble?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Blood pressure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Seizures?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Any other medications for any reason (including over-the-counter medications)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>8. PROBLEMS WHILE USING A RESPIRATOR</b>				<b>If yes, please comment.</b>
Have you ever had any of the following problems using a respirator? If you have never used one, check this box <input type="checkbox"/> and proceed to question 9.				
a. Eye irritation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Skin allergies or rashes?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Anxiety?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. General weakness or fatigue?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Any other problems that interfere with your use of a respirator?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>9. Would you like to discuss specific issues with the healthcare professional who will review this questionnaire?</b>				
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.</b>				
<b>VISION PROBLEMS:</b>				<b>If yes, please comment.</b>
10. Have you every lost vision in either eye (temporarily or permanently)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
11. Do you currently have any of the following vision problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Wear contact lenses?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Wear glasses?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Color blindness?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Any other eye or vision problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>HEARING PROBLEMS:</b>				<b>If yes, please comment.</b>
12. Have you ever had an injury to your ears, including a broken eardrum?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
13. Do you currently have any of the following hearing problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Do you currently have difficulty hearing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Do you currently wear a hearing aide?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Do you currently have any other hearing or ear problem?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
<b>MUSCULOSKELETAL PROBLEMS:</b>				<b>If yes, please comment.</b>
14. Have you ever had a back injury?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
15. Do you currently have any of the following muscularskeletal problems?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
a. Weakness in either of your arms, hands, legs, or feet?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
b. Back pain?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
c. Difficulty fully moving your arms and legs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
d. Pain or stiffness when you lean forward or backward at the waist?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
e. Difficulty fully moving your head up or down?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
f. Difficulty fully moving your head from side to side?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
g. Difficulty bending at your knees?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
h. Difficulty squatting to the ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
i. Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
j. Any other muscle or skeletal problem that interfered with using a respirator?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

## Voluntary Respirator Use

### Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by the OSHA standards. If your employer provides respirators for your voluntary use, you must take certain precautions to ensure that the respirator does not present a hazard.

#### **When using a respirator you should do the following:**

1. Read and follow 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. 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 and smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
5. If you have trouble with your respirator, take it to your supervisor for inspection and possible replacement.

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Employee Name: \_\_\_\_\_



## Rainbow Passage

A copy of the following rainbow passage can be taped to the inside of the test chamber, or posted for subjects to read during the fit testing steps of either fit testing protocol.

### Rainbow Passage

**When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a person looks for something beyond their reach, their friends say they are looking for the pot of gold at the end of the rainbow.**

## Hot Work Permit

### HOT WORK PERMIT (Permit must be displayed at job location)

**Valid for current shift**

HOT WORK PERMIT (Permit must be displayed at job location)			
Valid for current shift			
	Checklist	Yes	N/A
<p>This Hot Work Permit is required for work involving electric or gas welding, cutting, brazing, soldering, grinding, or similar spark producing operations.</p> <p>Department: _____ Date: _____                      Location: _____ Shift: _____                      Job description: _____                      Object being worked on: _____</p> <hr/> <p>I have inspected the location where this job is to be done. I have checked for compliance with safety precautions listed on the adjacent checklist.</p> <p>_____ (Person(s) performing work)</p> <p>_____ (Fire watch)</p> <p>_____ (Authorized individual(s)/Supervisor)</p> <p>Time started: Date: _____ Time: _____ AM/PM                      Expiration: Date: _____ Time: _____ AM/PM</p> <p><b>Other line procedures needed:</b></p> <p>Line opening <input type="checkbox"/> Confined space <input type="checkbox"/>                      Lockout <input type="checkbox"/> None <input type="checkbox"/></p> <p><b>Flame or sparking device to be used:</b></p> <p>Acetylene Torch <input type="checkbox"/> Abrasive Saw <input type="checkbox"/>                      Arc Welding <input type="checkbox"/> Portable Grinder <input type="checkbox"/>                      Propane Torch <input type="checkbox"/> Other <input type="checkbox"/></p> <p><b>Emergency provisions:</b></p> <p>1. Location of nearest phone: _____                      _____</p> <p>2. Number dialed for emergency services:                      _____</p> <p>3. Location of nearest access/egress point:                      _____                      _____</p> <p>4. Location of nearest fire fighting equipment:                      _____                      _____</p>	<p>1. Combustible material within 35 feet of work removed from area, shielded or covered with wet or flame-proof tarpaulins or metal guards.</p> <p>2. Combustibles on floor, walls and ceiling removed or wet down.</p> <p>3. All floor and wall openings covered to prevent sparks from falling to lower floors or penetrating adjacent areas.</p> <p>4. Ducts or conveyors shutdown to prevent sparks from being conveyed to distant combustibles.</p> <p>5. Lockout procedures followed.</p> <p>6. Flame proof curtains or shields erected around welders to protect personnel from flash.</p> <p>7. Fire watch provided and will be maintained after completion of job.</p> <p>8. Proper fire extinguisher(s) or charged water hose provided.</p> <p>9. Equipment purged, flused and tested for LEL.</p> <p>10. Proper respiratory protection used.</p> <p>11. Area roped off.</p> <p>12. Sewers and drains covered.</p> <p>13. Atmospheric Test                      Flammable vapors must be less than 10% LEL _____ Reading                      _____ and _____                      (tester) (witness)</p> <p>14. Other precautions:                      _____                      _____                      _____                      _____</p>		

# GFCI Report

MONTH: \_\_\_\_\_ 20\_\_

Number	Equipment ID Number	Location Where Inspected	Equipment OK		Out of Service
			Yes	No	
1					
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48					

Location: \_\_\_\_\_

Tested By: \_\_\_\_\_

# GFCI Report

MONTH: \_\_\_\_\_ 20\_\_

Number	Equipment ID Number	Location Where Inspected	Equipment OK		Out of Service
			Yes	No	
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					
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86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					

Location: \_\_\_\_\_

Tested By: \_\_\_\_\_

### Lockout / Tagout Procedure

DATE \_\_\_\_\_

PAGE \_\_\_\_ OF \_\_\_\_

	Machinery/Equipment	Isolation Device(s)	Locations	Comments	Locked/Isolated By:
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

**Lockout / Tagout Directory**

Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Affected Employees**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Authorized Employees / Positions**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

## Employee Performance Observation Report

Date: \_\_\_/\_\_\_/\_\_\_

Time: \_\_\_\_\_ AM/PM  
(Circle)

Specific operation or description of job:

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Full compliance and performance of proper Lockout / Tagout procedures as outlined in the facility written Lockout / Tagout procedures.

Describe any violations observed. \_\_\_\_\_

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Action Taken:    Retraining                   Reprimand

If other than indicated above, please describe. \_\_\_\_\_

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\_\_\_\_\_  
(Signature of Supervisor)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

*This form is to assist in compliance with record keeping requirements of 29 CFR 1910.147(c)(6) Lockout / Tagout.*

**Personal Protective Equipment**  
Categories of PPE as described in NFPA 70E

Category	Cal/cm <sup>2</sup>	Clothing
0	1.2	Untreated Cotton
1	5	Flame retardant (FR) shirt and FR pants
2	8	Cotton underwear, FR shirt, and FR pants
3	25	Cotton underwear, FR shirt, FR pants, and FR coveralls
4	40	Cotton underwear, FR shirt, FR pants, and double layer switching coat and pants

Cal/cm<sup>2</sup> are the units of incident energy that the PPE can withstand. Note that a hard hat with full faceshield and the appropriate gloves are required also.

### Personal Protective Equipment Matrix

Protective Clothing and Equipment Hazard/Risk Category Number	Protective Systems for Hazard/Risk Category					
	-1 <sup>(3)</sup>	0	1	2	3	4
<b>Non-Melting (according to ASTM F 1506-00) or Untreated Natural Fiber</b>						
a. T-shirt (short-sleeve)	X			X	X	X
b. Shirt (long-sleeve)		X				
c. Paints (long)	X	X	X <sup>(4)</sup>	X <sup>(6)</sup>	X	X
<b>FR Clothing</b>						
a. Long-sleeve shirt			X	X	X <sup>(9)</sup>	X
b. Pants			X <sup>(4)</sup>	X <sup>(6)</sup>	X <sup>(9)</sup>	X
c. Coverall			<sup>(5)</sup>	<sup>(7)</sup>	X <sup>(9)</sup>	<sup>(5)</sup>
d. Jacket, parka, or rainwear			AN	AN	AN	AN
<b>FR Protective Equipment</b>						
a. Flash suit jacket (multilayer)						X
b. Flash suit pants (multilayer)						X
c. Head Protection						
1. Hard Hat			X	X	X	X
2. FR hard hat liner					AR	AR
d. Eye protection						
1. Safety glasses	X	X	X	AL	AL	AL
2. Safety goggles				AL	AL	AL
e. Face and head area protection						
1. Arc-rated face shield, or flash suit hood				X <sup>(8)</sup>		
2. Flash suit hood					X	X
3. Hearing protection (ear canal inserts)				X <sup>(8)</sup>	X	X
f. Hand protection						
1. Leather gloves			AN	X	X	X
g. Foot protection						
1. Leather work shoes			AN	X	X	X
<b>PPE Arc Flash Gear Required</b>	<b>N/R</b>	<b>N/R</b>	<b>4cal</b>	<b>8cal</b>	<b>25cal</b>	<b>40cal</b>

**Hazard categories up to 2 OPP will require 11 calorie protection.**

**Hazard categories over 2 OPP will require 40 calorie protection.**

AN = As needed      AR = As required      AL = Select one in group      X = Minimum required

**Notes:**

- (1) See Table 130.7 (C) (11). Arc rating for a garment is expressed in cal/cm<sup>2</sup>.
- (2) If voltage-rated gloves are required, the leather protectors worn external to the rubber gloves satisfy this requirement.
- (3) Hazard/Risk Category Number "-1" is only defined if determined by Notes 3 or 6 of table 130.7 (C)(9)(a).
- (4) Regular weight (minimum 12 oz/yd<sup>2</sup> fabric weight), untreated, denim cotton blue jeans are acceptable in lieu of FR pants. The FR pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 11 cal.
- (5) Alternate is to use FR coveralls (minimum arc rating of 11 cal) instead of FR shirts and FR pants.
- (6) If the FR pants have a minimum arc rating of 11 cal, long pants of non-melting or untreated fiber are not required beneath the FR pants.
- (7) Alternate is to use FR coveralls (minimum arc rating of 11 cal) over non-melting or untreated natural fiber pants and T-shirt.
- (8) A face shield with a minimum arc rating of 11 cal, with wrap-around guarding to protect not only the face, but also the forehead, ears, and neck (or alternatively, a flash suit hood), is required.
- (9) Alternate is to use two sets of FR coveralls (the inner with a minimum arc rating of 4 cal and outer coverall with a minimum arc rating of 5) over non-melting or untreated natural fiber clothing, instead of FR coveralls over FR shirt and FR pants over non-melting or untreated natural fiber clothing.

**Energized Electrical Work Permit**

**PART I: TO BE COMPLETED BY THE REQUESTER:**

Job/Work Order Number \_\_\_\_\_

- (1) Description of circuit/equipment/job location: \_\_\_\_\_  
\_\_\_\_\_
- (2) Description of work to be done: \_\_\_\_\_  
\_\_\_\_\_
- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
*Requester/Title*

\_\_\_\_\_  
*Date*

**PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:**

*Completed*

- (1) Detailed job description to be used in performing the above detailed work: \_\_\_\_\_   
\_\_\_\_\_
- (2) Description of the Safe Work Practices to be employed: \_\_\_\_\_   
\_\_\_\_\_
- (3) Results of the Shock Hazard Analysis: \_\_\_\_\_   
\_\_\_\_\_
- (4) Determination of Shock Protection Boundaries: \_\_\_\_\_   
\_\_\_\_\_
- (5) Results of the Flash Hazard Analysis: \_\_\_\_\_   
\_\_\_\_\_
- (6) Determination of the Flash Protection Boundary: \_\_\_\_\_   
\_\_\_\_\_
- (7) Necessary personal protective equipment to safely perform the assigned task: \_\_\_\_\_   
\_\_\_\_\_
- (8) Means employed to restrict the access of unqualified persons from the work area: \_\_\_\_\_   
\_\_\_\_\_
- (9) Evidence of completion of a Job Briefing including discussion of any job-related hazards: \_\_\_\_\_   
\_\_\_\_\_
- (10) Do you agree the above described work can be done safely?  Yes  No (if no, return to requester)

\_\_\_\_\_  
*Electrically Qualified Person(s)*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Electrically Qualified Person(s)*

\_\_\_\_\_  
*Date*

**PART III: APPROVAL(S) TO PERFORM WORK WHILE ELECTRICALLY ENERGIZED:**

\_\_\_\_\_  
*Manufacturing Manager*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Safety Manager*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*General Manager*

\_\_\_\_\_  
*Date*

Note: Once the work is complete, forward this form to the site Safety Department for review and retention.

## Aerial Lift Inspection Report

1. Project #/Location: \_\_\_\_\_
2. Equipment #: \_\_\_\_\_ 3. Type of Lift: \_\_\_\_\_
4. Inspection Date: \_\_\_\_\_ 5. Operator Name: \_\_\_\_\_

INSTRUCTIONS: 1) Complete report prior to use. Use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the on-site project manager or superintendent immediately.

2) This document shall be maintained at the job-site or production facility. A copy shall be forwarded to proper maintenance locations as applicable.

CODES: G = Good Condition; N/A = Not Applicable; NR = Need Repair; M = Missing (needs replacement)

Daily Visual Checks		Date	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Comments (Date of repairs)
1	Operation & safety manual									
2	Warning & instruction decals									
3	Capacity & control decals									
4	Controls & emergency down valves operate properly									
5	All covers & shrouds in place									
6	Lift & extension cylinder assemblies									
7	Pivot pins & retainers									
8	Boom(s)/Scissorlift(s) condition									
9	Slave level cylinder & retainers									
10	Master level cylinder									
11	Electrical wires									
12	Battery condition & brackets and covers in place									
13	Battery charger condition & properly wired with ground									
14	Tire condition, inflation, & lugs									
15	Outriggers/extendible axles									
16	Gas & hydraulic tank caps									
17	Turret condition									
18	Platform rails & cages									
19	Toe boards & mesh condition									
20	Control box assembly									
21	Platform decking									
22	Platform lanyard connections									
23	Platform mount assembly									

Signature of operator inspecting lift:

Sun. \_\_\_\_\_  
 Mon. \_\_\_\_\_  
 Tues. \_\_\_\_\_  
 Wed. \_\_\_\_\_

Thur. \_\_\_\_\_  
 Fri. \_\_\_\_\_  
 Sat. \_\_\_\_\_

Copy Distribution:

Maintained in Lift Project or Equipment File

## Crane Insurance Request Form

To ensure proper insurance coverage, please complete the following information when renting or leasing cranes that have a value greater than \$500,000. You can fax this form to:

APi Risk Management

Please allow as much advanced notice as possible.

Thank you.

Year, Make & Model	
Value	
Experience of Operator	
Origin of Operator (Insured's or leasing Company)	
Assembly Required	
Transit Required	
Multiple Lifts	
Tandem Lifts	
Full Description of the Pick/Job to be Performed	
Term to be Insured	
Other Information	

# Critical Lift Checklist

1. Project Name: \_\_\_\_\_ 2. Job #: \_\_\_\_\_

3. Project Supt./Supv.: \_\_\_\_\_

4. Subject: \_\_\_\_\_ 5. Date: \_\_\_\_\_

**A LIFT PLAN SHOULD BE COMPLETED PRIOR TO MOBILIZATION OF EQUIPMENT AND RIGGING.**

**A. WEIGHT**

- 1. Equipment Condition: New  Used
- 2. Weight Empty: \_\_\_\_\_ lbs.
- 3. Weight of Headache Ball: \_\_\_\_\_ lbs.
- 4. Weight of Block: \_\_\_\_\_ lbs.
- 5. Weight of Lifting Bar: \_\_\_\_\_ lbs.
- 6. Weight of Slings & Shackles: \_\_\_\_\_ lbs.
- 7. Weight of Jib (Erected/Stored): \_\_\_\_\_ lbs.
- 8. Weight of Headache Ball on Jib: \_\_\_\_\_ lbs.
- 9. Weight of Cable (Load Full): \_\_\_\_\_ lbs.
- 10. Allowance for Unaccounted Material Equipment: \_\_\_\_\_ lbs.
- 11. Other: \_\_\_\_\_ lbs.

Total Weight:

Source of Load Weight:  
\_\_\_\_\_  
(Name Plate, Drawings, Calculated, etc.)

Weights Verified By:  
\_\_\_\_\_

**B. JIB**

Erected? \_\_\_\_\_ Stored? \_\_\_\_\_

- 1. Is Jib to be used? \_\_\_\_\_ (if yes, then)
- 2. Length of Jib: \_\_\_\_\_
- 3. Angle of Jib: \_\_\_\_\_
- 4. Rated Capacity of Jib (from chart):

**C. CRANE PLACEMENT**

- 1. Any deviation from smooth solid foundation in the area? \_\_\_\_\_
- 2. Electrical hazards in area? \_\_\_\_\_
- 3. Obstacles or obstructions to lift or swing? \_\_\_\_\_
- 4. Swing direction and degree (boom swing)? \_\_\_\_\_

**D. CABLE**

- 1. Number of parts of cable: \_\_\_\_\_
- 2. Size of cable: \_\_\_\_\_
- 3. Size of block: \_\_\_\_\_

**E. SIZING OF SLINGS**

**1. Sling Selection**

- a. Type of arrangement (Straight, Basket, Choke, etc.): \_\_\_\_\_
- b. Number of slings in hook-up: \_\_\_\_\_
- c. Sling size: \_\_\_\_\_
- d. Sling Length: \_\_\_\_\_
- e. Rated capacity of sling:

**2. Shackle Selection**

- a. Pin diameter (inches): \_\_\_\_\_
- b. Capacity (tons): \_\_\_\_\_
- c. Shackle attached to load by: \_\_\_\_\_
- d. Number of shackles: \_\_\_\_\_

**F. CRANE**

1. Type of Crane: \_\_\_\_\_
2. Crane Capacity: \_\_\_\_\_
3. **Lifting arrangement**
4.
  - a. Max distance-center of load to center of crane pin: \_\_\_\_\_ ft.
  - b. Length of boom: \_\_\_\_\_ ft.
  - c. Angle of boom at pick-up: \_\_\_\_\_ degrees
  - d. Angle of boom set: \_\_\_\_\_ degrees
  - e. **Rated capacity of crane under severest lifting conditions:** (from chart)
    1. Over rear: \_\_\_\_\_ lbs.
    2. Over front: \_\_\_\_\_ lbs.
    3. Over side: \_\_\_\_\_ lbs.
    4. From chart – rated capacity of crane for this lift:
    5. Max. load on crane: \_\_\_\_\_

6. Lift is what percentage of the cranes rated capacity? \_\_\_\_\_ %

**G. PRE-LIFT CHECKLIST**

- |  | YES                      | NO                       |
|--|--------------------------|--------------------------|
| 1. Matting acceptable?                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Outriggers fully extended?                          | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Crane in good condition?                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Swing room?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Head room checked?                                  | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Max. counterweights used?                           | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Tag line used?                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Experienced operator?                               | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Experienced signaling/flagging person (designated)? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Load chart in crane?                               | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Wind conditions: _____ mph.                        |                          |                          |
| 12. Crane inspected by: _____                          |                          |                          |
| 13. Functional test of crane by: _____                 |                          |                          |

**SPECIAL INSTRUCTIONS OR RESTRICTIONS FOR CRANE, RIGGING, LIFT, ETC.**

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\*MULTIPLE CRANE LIFTS REQUIRE A SEPARATE LIFT PLAN FOR EACH CRANE.  
 \* ANY CHANGES IN THE CONFIGURATION OF THE CRANE, RIGGING, LIFTING SCHEME, ETC., OR CHANGES IN ANY OF THE CALCULATIONS REQUIRE THAT A NEW LIFT PLAN BE DEVELOPMED.

\_\_\_\_\_  
SIGNATURE OF JOB SUPT./SUPV.                      DATE

\_\_\_\_\_  
SIGNATURE – CHECKLIST REVIEWED BY                      DATE

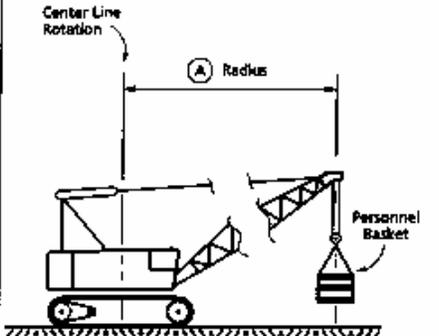
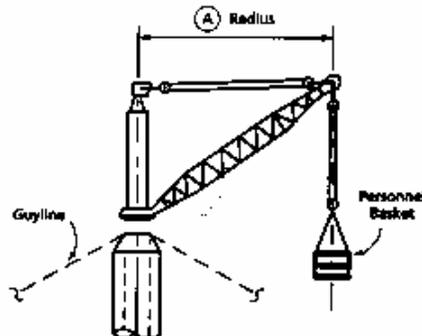
\_\_\_\_\_  
SIGNATURE OF PROFESSIONAL ENGINEER (if applicable)

\_\_\_\_\_  
STATE & LICENSE

# Trial Lift Documentation Form

## SUSPENDED PERSONNEL BASKET WORKSHEET

LOCATION:	CONTRACT NO.:
TYPE OF LIFTING EQUIPMENT (Derrick, Crawler Crane, Truck Crane, Other):	Worksheet Completed:
FULL-CYCLE TRIAL LIFT PERFORMED ON:	Date _____ Date _____
SUPERVISOR'S SIGNATURE (Certifying Contents of Worksheet Have Been Met):	Date _____ Date _____

CRANE	DERRICK
 <p style="margin-top: 10px;"> <b>A</b> Radius _____  <b>B</b> Rated Capacity _____  <b>C</b> Rated Capacity = <math>\frac{\quad}{2}</math> _____         </p>	 <p style="margin-top: 10px;"> <b>A</b> Radius _____  <b>B</b> Rated Capacity _____  <b>C</b> Rated Capacity = <math>\frac{\quad}{2}</math> _____         </p>

<p><b>LOAD CALCULATION</b> Determine Weight Within Ⓢ</p> <p>1. Intended Load</p> <p style="margin-left: 20px;">a. # Persons _____ x 200 lbs/ea = _____ (Max. 4 persons)</p> <p style="margin-left: 20px;">b. Tools &amp; Equipment = _____</p> <p>2. Personnel Basket Weight = _____</p> <p>3. Rigging (Slings, Block, etc.) = _____</p> <p style="text-align: right;">LIFTED LOAD = _____ less than or equal to Ⓢ</p>	<p><b>PERSONNEL BASKET &amp; RIGGING PROOF TEST</b> At job start only:</p> <p>Personnel Basket Weight Capacity _____ x _____ 1.25 Proof Load = _____</p> <p>LOAD THE BASKET with proof load amount and suspend above ground/floor for five minutes. Completed on _____</p> <p>SIGNED _____ Basket and rigging inspected following proof test? _____</p>
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**SUPERVISOR'S STATEMENT**

Supervisor's Statement attesting need for using suspended personnel basket (describe operation and timeframe)

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## Daily Crane Inspection Report

1. Project # & Location: \_\_\_\_\_

2. Crane # & Make: \_\_\_\_\_ 4. Inspection Date: \_\_\_\_\_

- 1) Operator shall use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the Project or Site Supervisor immediately.
- 2) At the end of each week or end of crane use for the week, distribute as indicated below.

CODES: G = Good Condition N/A = Not Applicable NR = Need Repair M = Missing (needs replacement)

Daily Visual Checks		Date	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Comments (Date of repairs)
1	Broken or cracked glass									
2	Oil or coolant leakage									
3	Hydraulic fluid leakage									
4	Air system									
5	Load capacity chart									
6	Owner's manual									
7	Hand signal chart									
8	Boom angle indicator full range capacity									
9	Boom cable									
10	Load line									
11	Whip line									
12	Jib pendant lines									
13	Boom lacing/cords									
14	Load block & ball									
15	Crane hook-cracks and/or deformation									
16	Hook safety latches									
17	Boom hoist kickout									
18	Clutches									
19	Brakes									
20	Stops and bumpers									
21	Anti-two-blocking device									
22	Travel steering, braking and locking devices									
23	Telescope and/or hoist function									
24	Cribbing properly installed									
25	Crane setup within 1 degree level									
26	Carpenter's level for leveling crane									
27	Fire extinguisher (5 lb. ABC minimum)									
28	Area within swing radius of rotating structure barricaded									

Signature of operator inspecting lift:

Sun. \_\_\_\_\_  
 Mon. \_\_\_\_\_  
 Tues. \_\_\_\_\_  
 Wed. \_\_\_\_\_

Thur. \_\_\_\_\_  
 Fri. \_\_\_\_\_  
 Sat. \_\_\_\_\_

**COPY DISTRIBUTION:**

- 1 - Supervisor
- 2 - Equipment or Project File
- 3 - Crane Cab

## Monthly Crane Inspection Report

1. Project #/Location: \_\_\_\_\_ 2. Inspection Date: \_\_\_\_\_

3. Crane #: \_\_\_\_\_ 4. Engine Hours: \_\_\_\_\_

INSTRUCTIONS: 1) This report is to be completed at the end of each month. Operator shall use codes for each item listed below. All defective items shall be recorded below (comments) and reported to the project manager or site supervisor immediately.

2) After completing the form, maintain one copy in the folder on the crane and return one copy to the applicable supervisor to be placed in the project or site equipment files.

CODES: G = Good Condition; N/A = Not Applicable; NR = Need Repair; M = Missing (needs replacement)

1. GENERAL

- Appearance
- Paint
- Cab (including housekeeping)
- Glass
- Grease/oil leaks
- Excessively worn or damaged tires

2. ENGINE

- Oil level and condition
- Hour meter
- Operating condition
- Cooling system
- Battery condition
- Air system
- Pressure
- Engine instruments
- All guards and chain covers in position

3. DRAW WORK (cable crane)

- Clutch
- Brake
- Pawl
- Swing shaft
- Clutches
- Brake
- Drum shaft
- Flanges – left hand
- Flanges – right hand
- Clutches – left hand
- Clutches – right hand
- Third drum
- Clutch
- Brake
- Control operation

4. UPPER WORKS (hydraulic crane)

- Boom hoist cylinders
- Boom hoist cylinder mounting
- Swing motor
- Swing gear assembly
- Swing brake
- Main hoist flanges
- Auxiliary hoist flanges
- Control operation

5. HYDRAULIC SYSTEM

- Hoses
- Lines
- Pumps
- Motors
- Fittings
- Hydraulic fluid level
- Leakage

6. TRACKS

- Chains
- Sprockets
- Idlers
- Pins
- Track adjustment
- Roller path
- Travel brake

7. CARRIER

- Tire condition
- Brakes
- Steering
- Outriggers
- Glass
- Controls
- Fire extinguisher (ABC minimum)

8. BOOM (cable crane)

- Cords (length of damaged section - \_\_\_\_\_)
- Lacing (length of damaged section - \_\_\_\_\_)
- Boom stops
- Automatic boom stops
- Automatic mast stop
- Gantry sheaves lubricated (sheave condition - \_\_\_\_\_)
- Load block (capacity - \_\_\_\_\_)
- Load block condition
- Hook condition (bent, cracked, etc.)
- Hook safety latch
- Jib condition (length - \_\_\_\_\_)
- Jib sheave axle lubricated
- Anti – two-blocking device

(continued on page 2)



## Chain Fall Inspection Report

DATE: \_\_\_\_\_ EQUIPMENT ID: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_ CAPACITY: \_\_\_\_\_ TONS: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

LOCATION: \_\_\_\_\_

	OK	Repair	Replace	Lubricate	Adjust	Clean	Unsafe	N/A
<b>CHAIN FALL</b>								
Capacity Markings								
Gear case/reducer								
Guards and covers								
Hand chain								
Hand chain gear assembly								
Hardware								
Hoist operation								
Housekeeping								
Load block frame								
Load brake or clutch								
Load chain								
Load chain gear								
Load chain guide								
Load hook assembly								
Load hook safety latch								
Load hook swivel bearing								
Load test at 125% rated								
Steel frame condition								
Top hook assembly								
Top hook safety latch								
Top hook swivel bearing								
Warning tag								

ADDITIONAL COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

INSPECTOR: \_\_\_\_\_  
Signature of Inspector
Print Name

## Powered Hoist Inspection Report

DATE: \_\_\_\_\_ EQUIPMENT ID: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_ CAPACITY: \_\_\_\_\_ TONS: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

LOCATION: \_\_\_\_\_

	OK	Repair	Replace	Lubricate	Adjust	Clean	Unsafe	N/A
<b>CHAIN FALL</b>								
2" Vert. 3" Hor. clearance								
Capacity markings								
Contractors								
Control station/pendant								
Fusing								
Gear case/oil level								
Guards and covers								
Hardware								
Hoist operation								
Housekeeping								
Load block frame								
Load block sheave								
Load brake or clutch								
Load hook assembly								
Load hook safety latch								
Load hook swivel bearing								
Lower limit switch								
Motor brake								
Motor(s)								
Overload protection								
Steel frame condition								
Top hook assembly								
Top hook safety latch								
Top hook swivel bearing								
U								
Warning Tag								

ADDITIONAL COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

INSPECTOR: \_\_\_\_\_

Signature of Inspector

Print Name

## MVR Grade Assessment Sheet Non- DOT

### Grade I – Green

- Valid driver's license with no violations reported.

**REQUIRED ACTION:** None

### Grade II - Blue

- Valid driver's license with one record for a moving violation.
- Valid driver's license with one to three records for a non-moving violation.

**REQUIRED ACTION:** Manager should provide copy of Fleet Policy to driver. Manager should explain consequences of subsequent violations.

### Grade III – Yellow

- Valid driver's license with two or three records for moving violations.
- Valid driver's license with one to three records of accidents.
- Valid driver's license with four or more records for a non-moving violation.

**REQUIRED ACTION:** Manager should review policy and provide copy of Fleet Policy to driver. Manager should explain consequences of subsequent violations. Driver must attend company sponsored video or web-based driver safety training and submit documentation of successful completion to the applicable safety manager. Document on Driver Status Sheet.

### Grade IV-Orange

- Valid driver's license with four or more moving violations or accidents.
- Valid driver's license but has experienced one or two records of suspension/revocation.
- Valid driver's license with one record of DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test.
- No proof of insurance

**REQUIRED ACTION:** Suspension of driving privileges for a minimum of 30 days and/or until such time individual has a clean three year driving history. Time of suspension is chosen at the discretion of applicable company manager. Manager should review policy and give copy to driver. Manager explains consequences of subsequent violations. Driver must attend driver safety training at own expense and time, and submit documentation of successful completion to the applicable safety manager. For DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test violation driver must also provide proof of drug and/or alcohol training course to applicable safety manager prior to driving privileges being reinstated. Document on Driver Status Sheet.

### Grade V – Red

- Current driver's license is suspended or revoked.
- Valid driver's license with three or more suspensions/revocations.
- Valid driver's license with two or more convictions for DWI/DUI and/or refusal/implied consent to take a blood/breath alcohol or drug test.
- Valid driver's license with a record for vehicular manslaughter.
- Valid driver's license with a record for a hit-and-run accident.
- Valid driver's license with an at fault accident recorded involving death.
- Felony or homicide record using a motor vehicle.

} Mandatory Revocation

**REQUIRED ACTION:** If driver has ability to reinstate invalids, suspended or revoked license, driver may have driving privileges reinstated after MVR comes back with grade lower than Red V. All other Red V drivers will have their company driving privileges revoked. Document on Driver Status Sheet.

### NOTICES:

**For the purposes of this policy, a valid driver's license has no restrictions whatsoever. An invalid license, also synonymous with limited, probationary, restricted, temporary, work permit is not considered a valid driver's license.**

**Any violation that could result in a classification of Grade III, Grade IV or Grade V must be reported to the company president or safety manager as soon as possible, but no more than before the end of the business day following the day that the employee/driver receives notification.**



### Driver Status Sheet

Employee Full Name: \_\_\_\_\_

Position: \_\_\_\_\_

Company/Branch: \_\_\_\_\_ MVR Account # AP \_\_\_\_\_

Current MVR Rating: \_\_\_\_\_

This information serves as documentation of the above mentioned employee's driving record & associated infraction/s regarding the Company's Fleet Safety Policy. The following items were reviewed and/or discussed with the employee.

	YES	NO
Fleet Policy		
Review of Category Ranking System		
Consequences of subsequent infractions		

Below, please provide details on what was discussed with the employee including any/all disciplinary action, suspension, or training that occurred as a result of the employees change in Driver Status.

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Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Manager Signature \_\_\_\_\_ Date \_\_\_\_\_

CC: Employee, Manager, Safety/Supervisor, Employee Personnel File

## Fleet Policy Audit

Company: \_\_\_\_\_ Auditor: \_\_\_\_\_

Date of Audit: \_\_\_\_\_ Company Representative: \_\_\_\_\_

### NON-DOT REGULATED VEHICLES

Passenger cars and trucks less than 10,001 lbs (GVWR/GCWR)

\* Remember to calculate the truck + trailer combination

Circle Answer		
Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	Grade II: Yellow Employees - Policy is reviewed with drivers, consequences of subsequent violations are explained, and status is documented on Driver Status Sheet
Y	N	Grade III: Orange Employees - Policy is reviewed with drivers, consequences of subsequent violations are explained, drivers attended Company-sponsored Driver Safety Training, and status is documented on Driver Status Sheet
Y	N	Grade IV: Red Employees - Depending on violations, actions are taken according to MVR Grade Assessment Sheet
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 18
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
		Maintenance records are maintained for each vehicle. This file should contain:
Y	N	• Name of employee assigned to the vehicle
Y	N	• Identification of the vehicle that includes: Company number, make, serial number, year, and tire size
Y	N	• A systematic method to show due dates of the required maintenance
Y	N	• Records of maintenance showing the date and service provided
Y	N	• Records of repairs that are not scheduled
Y	N	• If the vehicle is not owned by the company, the name of the owner or lessee

## DOT REGULATED VEHICLES

Heavy-duty trucks between 10,001 lbs and 26,000 lbs (GVWR/GCWR)

\* Remember to calculate the truck + trailer combination

Circle  
Answer

Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	MVRs are checked for compliance to standards in the FMCSRs.
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 21
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
Y	N	A vehicle list has been developed and is kept updated that includes: whether the vehicle is interstate or intrastate, GVWR or GCWR, number of passengers transported
Y	N	All vehicles have a DOT Identification Number if crossing state lines(see specific state regulations)
Y	N	The Safety Fitness Rating has been calculated and documented (this can be done by going on <a href="http://safersys.org">safersys.org</a> and entering the DOT Identification Number)
		Driver Qualification Files for all drivers must contain the following:
Y	N	• Application for employment (if there is not one available, have employee fill out application and note that files are being updated and there was not an application in the file originally)
Y	N	• MVR check results
Y	N	• Reference checks - within 30 days after employment, an investigation must be made on each driver's employment record for the previous 3 years. If previous employers fail to respond to request for information, documentation is placed in the file stating the nature of the attempts to get the information. If the employee has been employed for more than 3 years, and reference checks were never performed, place a note in the file.
Y	N	• Annual review of driving record - annual MVR check
Y	N	• Driver's record of violations - drivers must complete a document listing all violations of motor vehicle laws and ordinances, other than violations involving parking, for which the driver has been convicted or forfeited bond or collateral over the previous 12 months. This document can be removed from the file after 3 years.
Y	N	• Road test - employees are given a road test in the type of vehicle they operate. Certificates of test must be completed, a copy given to driver, and a copy placed in file. Road test must include: pre-trip and post-trip inspections, coupling and uncoupling of combination units, placing vehicles in operation, use of vehicle controls and emergency equipment, operating the vehicle in traffic, turning, braking, backing and parking.
Y	N	• Medical examiners certificate - A DOT medical examination is required at the time of hire and every 2 years thereafter. The only document required in the file is a copy of the Medical Examiner's Certificate. The driver must carry a copy of the current certificate at all times they are operating a commercial vehicle. Medical examination records can be removed after 3 years.
Y	N	Driver's hours of service requirements are followed
Y	N	Daily Inspection Log is completed by driver

## DOT REGULATED VEHICLES

Circle  
Answer

Heavy-duty trucks 26,001 lbs and greater (GVWR/GCWR)  
\* Remember to calculate the truck + trailer combination

Y	N	MVR checks are performed annually and pre-employment for employees driving either company vehicles or personal vehicles for company purpose
Y	N	Authorization sheets are kept outside of employee files
Y	N	MVRs are checked for compliance to standards in the FMCSRs.
Y	N	Fleet Safety Policy is reviewed with new hires upon time of hiring
Y	N	Vehicle list is current and uploaded onto the APi Group Intranet site
Y	N	Employees driving company vehicles are over the age of 21
Y	N	A list of authorized vs. non-authorized drivers has been developed and is kept current
Y	N	Authorized drivers and passengers wear seat belts at all times
Y	N	Authorized drivers follow the Cell Phone Use Policy
Y	N	Vehicle incidents are properly documented and reported to APi Group Risk Management
Y	N	Vehicle incidents are properly investigated
Y	N	A vehicle list has been developed and is kept updated that includes: whether the vehicle is interstate or intrastate, GVWR or GCWR, number of passengers transported
Y	N	All vehicles have a DOT Identification Number if crossing state lines(see specific state regulations)
Y	N	The Safety Fitness Rating has been calculated and documented (this can be done by going on safersys.org and entering the DOT Identification Number)
		Driver Qualification Files for all drivers must contain the following:
Y	N	• Application for employment (if there is not one available, have employee fill out application and note that files are being updated and there was not an application in the file originally)
Y	N	• MVR check results
Y	N	• Reference checks - within 30 days after employment, an investigation must be made on each driver's employment record for the previous 3 years. If previous employers fail to respond to request for information, documentation is placed in the file stating the nature of the attempts to get the information. If the employee has been employed for more than 3 years, and reference checks were never performed, place a note in the file.
Y	N	• Annual review of driving record - annual MVR check
Y	N	• Driver's record of violations - drivers must complete a document listing all violations of motor vehicle laws and ordinances, other than violations involving parking, for which the driver has been convicted or forfeited bond or collateral over the previous 12 months. This document can be removed from the file after 3 years.
Y	N	• Road test - employees are given a road test in the type of vehicle they operate. Certificates of test must be completed, a copy given to driver, and a copy placed in file. Road test must include: pre-trip and post-trip inspections, coupling and uncoupling of combination units, placing vehicles in operation, use of vehicle controls and emergency equipment, operating the vehicle in traffic, turning, braking, backing and parking.
Y	N	• Medical examiners certificate - A DOT medical examination is required at the time of hire and every 2 years thereafter. The only document required in the file is a copy of the Medical Examiner's Certificate. The driver must carry a copy of the current certificate at all times they are operating a commercial vehicle. Medical examination records can be removed after 3 years.
Y	N	Driver's hours of service requirements are followed
Y	N	Drivers have commercial driver's licenses (CDL) for the type of vehicle they will operate
Y	N	Drivers with less than 1 year experience operating a commercial motor vehicle that are required to have a CDL must receive the following training: driver qualification requirements, hours of service requirements, driver wellness, whistle blower protection. The driver should be issued a certificate of training and a copy of the certificate place in the driver's qualification file.
Y	N	Drivers subject to CDL standards are in compliance with the controlled substance and alcohol testing requirements
Y	N	Annual DOT inspection performed at DOT approved site

**Daily Vehicle Inspection Checklist**  
**Required for Vehicles above 10,000 lbs**  
(or truck + trailer combinations over 10,000 lbs total)

Driver Name \_\_\_\_\_ Vehicle Number/Tag \_\_\_\_\_ Date \_\_\_\_\_

Check to following items and report any defects to a mechanic.

	YES	NO	Comments
Backup Lights			
Battery			
Belts/Hoses			
Brakes (Pedal pressure)			
Emergency Flashers			
Emergency Warning Triangles (3)			
Fire Extinguisher (5#, Secured)			
Fluid Levels: oil, transmission, brake, radiator/cooling system			
Headlights			
Horn			
Instrument Panel			
Load tools, materials secured and/or stowed away			
Steering/Alignment			
Tail Lights			
Tires/Pressure			
Turn Signals			
Visible Fluid Leaks			
Windshield/Wiper Blades/Fluid			

<b>If equipped with trailer:</b>	YES	NO	Comments
Brakes, if Equipped			
Cargo Secured			
Electrical/Mechanical Connections			
Lights/Marker Lamps			
Springs			
Straps/Tie Downs			
Tires/Pressure			
Trailer Integrity(floor)			

Driver Reporting Defects: \_\_\_\_\_

Defects reported have been corrected or do not affect the safe operation of the vehicle.

Manager/Mechanic: \_\_\_\_\_

Driver reviewing report the next shift/day: \_\_\_\_\_ Date: \_\_\_\_\_

**Note:** This checklist is not intended to replace extensive mechanical inspections. The Vehicle Operator is responsible for the safe operation of his/her vehicle. This checklist describes the general operating condition of the vehicle surveyed at the time and date indicated above. Upon completion please submit to your immediate supervisor for documentation and/or corrective action.

## MVR Grade Assessment Sheet DOT

### Grade I - Green

- Only employees with a Valid Driver's License with no violations reported.

**REQUIRED ACTION:** None

### Grade II - Yellow

- Record of any Warrant Found.
- Record of driving the wrong way on a Divided Highway
- Failure to stop at accident causing property damage
- Failure to stop at the scene of an accident (Hit & Run)
- Licensed less than 3 years or State does not provide date of issuance

**REQUIRED ACTION:** Depending on the offense(s), the employee will be disqualified from driving a Commercial Vehicle until after meeting the required suspension period in accordance with the FMCSA. Reference: Regulation 383.51 Driver Disqualifications and Penalties, Subpart D Table 2.

### Grade III - Red

- Current Driver's License is Suspended or Revoked.
- One record for DWI/DUI or being under the influence of a controlled substance within the last year.
- Refusing to take an alcohol test as required by state or jurisdiction.
- Record of reckless driving within the past 3 years.
- Record of speeding over 20 mph of the posted speed or the range includes 21 mph or higher speeds within the past 3 years.
- Record of speeding over 100 mph within the past 3 years
- Record of speed contest within the past 3 years
- Record of exhibition speed in the past 3 years
- Record of transporting Explosives without special license within the past 3 years
- Record for evading a police officer causing injury of death in the past 3 years.
- Records of two or more chargeable accidents within the past 3 years.
- Records of three or more moving violations or accidents or combination thereof.
- Drivers under the age of 21.
- Drivers over the age of 65.
- Second conviction of leaving the scene of an accident within the past three years
- Conviction of having an alcohol concentration of .04 or greater while operating a commercial motor vehicle
- Using the vehicle to commit a felony
- Causing a fatality through the negligent operation of a commercial vehicle
- Second conviction of making improper or erratic lane changes within the past three years
- Second conviction of following the vehicle ahead too closely within the past three years
- Second conviction of he vehicle ahead too closely within the past three years
- Second conviction of violations of State or local law relating to motor vehicle traffic controls within the past three years

**REQUIRED ACTION:** Depending on the offense(s), the employee will not be allowed to drive a Commercial Vehicle until after meeting the required disqualification period in accordance with the FMCSA. Reference: Regulation 383.51 Driver Disqualifications and Penalties Subpart D Table 1.

**NOTIFICATION:** Any violation that could result in a classification of grade II or Grade III, must be reported to the Company President or Safety Manager as soon as possible, but no more than before the end of the business day following the day that the employee/driver receives notification.



## Fork Truck Daily Inspection

<b>Fuel Type:</b>	
LPG	<input type="checkbox"/>
Gasoline	<input type="checkbox"/>
Diesel	<input type="checkbox"/>
Electric	<input type="checkbox"/>

**Location:** \_\_\_\_\_

**Vehicle, Make:** \_\_\_\_\_

**Week of:** \_\_\_\_\_

✓ = **Satisfactory**

✗ = **Unsatisfactory**

n/a = **Not applicable**

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Fuel Level							
Water							
Engine Oil							
Hydraulic Oil							
Horn							
Brakes							
Tires							
Operator Training							
Hoist Cylinder							
Tilt Cylinder							
Air Cleanser							
Oil Pressure							
Forks							
Battery							
Fire Extinguisher							
Warning Device: Audible							

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Inspection by:** \_\_\_\_\_

*Signature*

*Print Name*

**Date:** \_\_\_\_\_



## Fork Truck Operator Evaluation

**Trainee Name:** \_\_\_\_\_

**Test Date:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Vehicle, Make:** \_\_\_\_\_

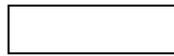
**Truck Type:**  Sit Down     Stand Up

**Fuel Type:**  LPG         Gasoline     Diesel     Electric

	Pass	Fail		Pass	Fail
1-8. Physical examination of lift truck: (Operator must perform and describe inspection of each item)			13. Did the operator raise or tilt the load properly?	<input type="checkbox"/>	<input type="checkbox"/>
1. Tilt	<input type="checkbox"/>	<input type="checkbox"/>	14. Did the truck strike anything while moving the pallet?	<input type="checkbox"/>	<input type="checkbox"/>
2. Raise/Lower	<input type="checkbox"/>	<input type="checkbox"/>	15. Did the operator lower the pallet before moving/backing out?	<input type="checkbox"/>	<input type="checkbox"/>
3. Horn	<input type="checkbox"/>	<input type="checkbox"/>	16. Did the operator drive at a safe rate of speed?	<input type="checkbox"/>	<input type="checkbox"/>
4. Tires	<input type="checkbox"/>	<input type="checkbox"/>	17. Did the operator slow down or stop at cross aisles?	<input type="checkbox"/>	<input type="checkbox"/>
5. Oil Leaks	<input type="checkbox"/>	<input type="checkbox"/>	18. Did they sound the horn?	<input type="checkbox"/>	<input type="checkbox"/>
6. Mast Chains	<input type="checkbox"/>	<input type="checkbox"/>	19. When returning pallet, did they properly pull into rack?	<input type="checkbox"/>	<input type="checkbox"/>
7. Brakes	<input type="checkbox"/>	<input type="checkbox"/>	20. Were any racks struck while replacing pallet?	<input type="checkbox"/>	<input type="checkbox"/>
8. Hour Meter	<input type="checkbox"/>	<input type="checkbox"/>	21. Did the operator back out and lower the forks before moving?	<input type="checkbox"/>	<input type="checkbox"/>
9. Ask the operator for 3 safety rules to follow at a loading/receiving dock.	<input type="checkbox"/>	<input type="checkbox"/>	22. Did the operator always look behind before backing up?	<input type="checkbox"/>	<input type="checkbox"/>
• Chock Wheels			23. Did the operator wear protective equipment?	<input type="checkbox"/>	<input type="checkbox"/>
• Wear Equipment			24. Did the operator set the load flat on the floor before getting off?	<input type="checkbox"/>	<input type="checkbox"/>
• Watch for others			25. Did the operator make any moves that were potentially dangerous?	<input type="checkbox"/>	<input type="checkbox"/>
• Hold Handrail					
• Operator Safety					
• Proper Lifting					
• Warn others					
• Other					
10. Ask the operator for 4 safety rules to follow at the battery charging stations.	<input type="checkbox"/>	<input type="checkbox"/>			
• Proper Equipment					
• Proper plug/unplug					
• No smoking					
• Clean-up Procedures					
• Eyewash station					
• Other					
11. Did the operator pull forward toward designated section of racking without striking anything?	<input type="checkbox"/>	<input type="checkbox"/>			
12. Did the operator place the forks under the pallet properly?	<input type="checkbox"/>	<input type="checkbox"/>			
			<b>TOTAL POINTS:</b> _____ / _____		

**Trainer/Supervisor:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**APWA UNIFORM COLOR CODE  
FOR MARKING UNDERGROUND UTILITY LINES**



Proposed Excavation



Temporary Survey Markings



Electric Power Lines, Cables, Conduit and Lighting Cables



Gas, Oil, Steam, Petroleum or Gaseous Materials



Communication, Fiber Optic, Alarm or Signal Lines, Cables or Conduit



Potable Water



Reclaimed Water, Irrigation and Slurry Lines



Sewers and Drain Lines

**CALL BEFORE YOU DIG!**

## Excavation Permit

Project #: \_\_\_\_\_ Name of Project: \_\_\_\_\_

Date: \_\_\_\_\_ Location of Excavation: \_\_\_\_\_

Excavation Permit #: \_\_\_\_\_ Excavator: \_\_\_\_\_

Competent Person: \_\_\_\_\_

Purpose of Excavation: \_\_\_\_\_

\_\_\_\_\_

### EXCAVATION PREPARATION

I. Blueprints and field checked to verify utility locations for:	<u>Yes</u>	<u>No</u>	<u>Supv. Initials</u>
A. Water Lines.....	_____	_____	_____
B. Electricity.....	_____	_____	_____
C. Gas.....	_____	_____	_____
D. Communication.....	_____	_____	_____
E. Sewers.....	_____	_____	_____
F. Other.....	_____	_____	_____
G. Called digger hotline (3 workday notice needed) ....	_____	_____	_____
H. Safety meeting for personnel involved.....	_____	_____	_____

NOTE: The above items must be marked off.

Comments: *(name of company and personnel contacted)* \_\_\_\_\_

\_\_\_\_\_

II. Safety:	<u>Yes</u>	<u>No</u>	<u>Supv. Initials</u>
A. Shoring to be used.....	_____	_____	_____
B. Sloping to be used.....	_____	_____	_____
C. Shielding to be used.....	_____	_____	_____
D. Barricades (flag, stake, paint).....	_____	_____	_____
E. Confined space permit needed.....	_____	_____	_____
F. Means of egress (ramp, steps, ladder).....	_____	_____	_____
G. Trained equipment operator.....	_____	_____	_____
H. Trained employee(s).....	_____	_____	_____

Comments: *(type of shoring/sloping/shielding to be used)* \_\_\_\_\_

\_\_\_\_\_

All necessary conditions and/or preparations have been satisfied, and I certify that the safety guidelines for excavating have been followed.

Signed: \_\_\_\_\_ Signed: \_\_\_\_\_  
*(Supervisor in Charge)* *(Supervisor Issuing Permit)*

## Daily Excavation Log

Project #: \_\_\_\_\_ Name of Project: \_\_\_\_\_

Date: \_\_\_\_\_ Excavation Permit #: \_\_\_\_\_

Soil Classification: \_\_\_\_\_ Excavation Depth: \_\_\_\_\_

Excavation Width: \_\_\_\_\_ Location of Excavation: \_\_\_\_\_

Competent Person: \_\_\_\_\_

**NOTE:** Prior to start of daily work activities, all excavation 5 feet or greater (less than 5 feet in unstable soil) are to be inspected by a competent person. The following items shall be evaluated:

- |   | <u>Yes</u>               | <u>No</u>                | <u>N/A</u>               |
|---|--------------------------|--------------------------|--------------------------|
| A. Barricades located around perimeters of excavations, wells, pits, shafts, etc.?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| B. Warning system established and utilized when mobile equipment is operating near edge of excavation?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| C. Walkways and bridges over excavations 4 feet or more in depth equipped with standard guardrail?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D. Stairway, ladder, or ramp located in excavations 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees for access and egress?.....                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| E. Are the spoil piles a minimum of 2 feet back from the edge of the excavation?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| F. Are employees protected from loose rock or soil, materials, and/or equipment that could pose a hazard by falling or rolling into the excavation?.....                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| G. Are ground fault circuit interrupters (GFCI's) being used on all electrical equipment?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| H. Adequate precaution taken to protect employees from exposure to an atmosphere containing less than 19.5% oxygen and/or other hazardous atmospheres in excavation greater than 4 feet?..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I. Crack-like opening or spalling observed?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| J. Did each employee receive training in excavating?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

***(list names of employees assigned to work in excavation below – please print)***


**Daily Excavation Log**  
**(page 2)**

- Soil Classification (pocket penetrometer test): ***(check one only)***

\_\_\_\_\_ Type A – Cohesive soils which have an unconfined compression strength of 1.5 ton per square foot (tsf) or greater. Example: Rock, clay, and sandy loam soils. Previously disturbed soil cannot be classified as Type A soil. Slope  $\frac{3}{4}$ :1 (53°).

\_\_\_\_\_ Type B – Cohesive soils which have an unconfined compression strength of 0.5 tsf but less than 1.5 tsf. Examples: Angular gravel (similar to crushed rock), silt, silt loam, and sandy loam. Slope 1:1 (45°).

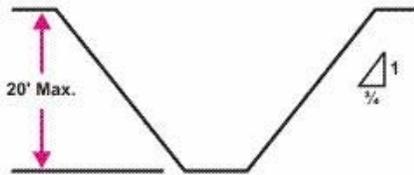
\_\_\_\_\_ Type C – Cohesive soils which have an unconfined compression strength of 0.5 tsf or less. Example: Granular soils including gravel, sand, loamy sand, and soil from which water is freely seeping and/or standing. Slope 1:1/2:1 (34°).

# SLOPE CONFIGURATIONS

(All slopes stated below are in the horizontal to vertical ratio)

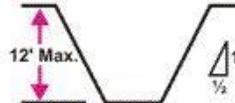
## D-1.1 EXCAVATIONS MADE IN TYPE A SOIL

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4:1



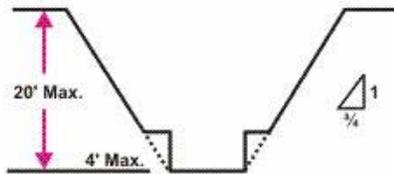
Simple Slope - General

- Exception: 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 1/2:1.

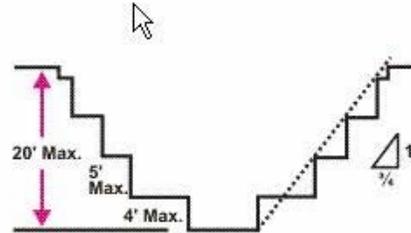


Simple Slope - Short Term

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4:1 and maximum bench dimensions as follows:

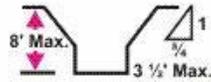


Simple Bench



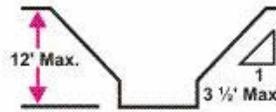
Multiple Bench

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3 1/2 feet.



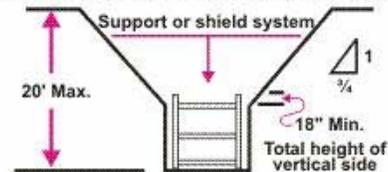
Unsupported Vertically Sided Lower Portion-  
Maximum 8 Feet in Depth

- 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 3 1/2 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 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



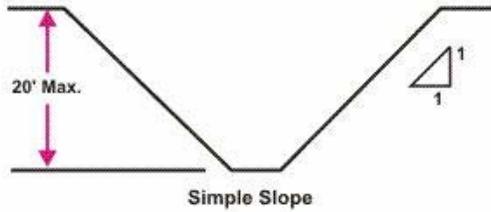
Supported or Shielded Vertically Sided  
Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under §1926.652(b).

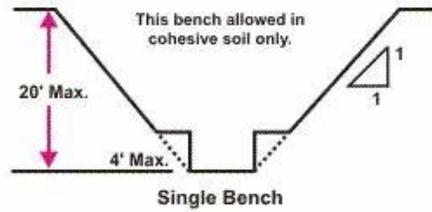
## SLOPE CONFIGURATIONS

### D-1.2 EXCAVATIONS MADE IN TYPE B SOIL

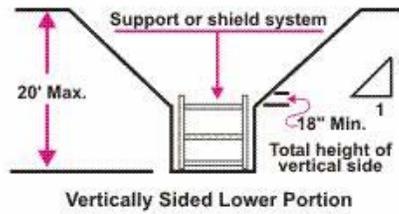
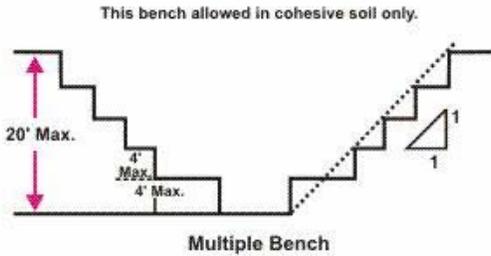
1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.



2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:



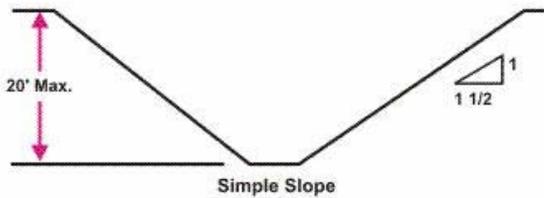
3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



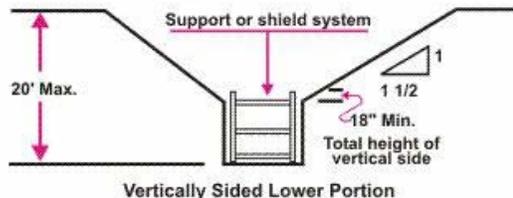
4. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

### D-1.3 EXCAVATIONS MADE IN TYPE C SOIL

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 1/2:1



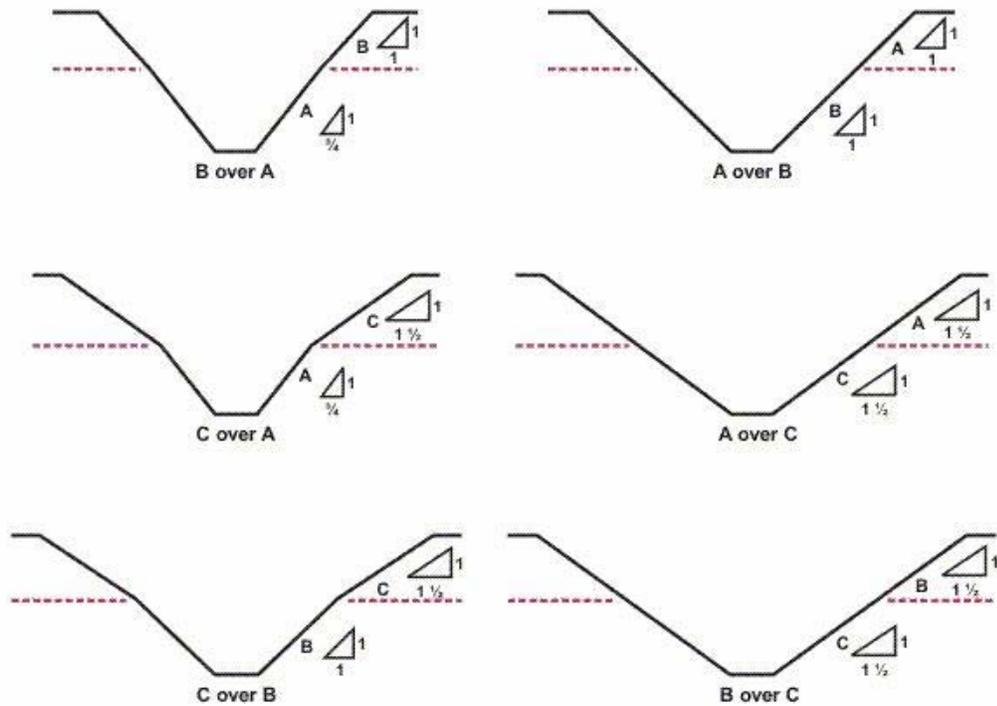
2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1 1/2:1.



3. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

## SLOPE CONFIGURATIONS D-1.4 EXCAVATIONS MADE IN LAYERED SOILS

1. 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.



2. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

**Environmental Risk Indemnification Agreement**  
**(for the Company use when subcontracting work).**

Subcontractor shall indemnify, defend and hold harmless, Contractor ( ), its agents, officers and employees from and against all claims, demands, actions, causes of actions, suits, damages, expenses (including attorney's fees) and liabilities whatsoever based upon, resulting from, arising out of, or in any way connected with a discharge, dispersal, release, seepage, migration, escape or presence of smoke, vapors, odors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, microbial matter (including all forms of mold), asbestos containing materials (ACM's), electromagnetic fields, waste materials, including medical, infectious and pathological wastes, or toxic irritants, contaminants or pollutants into or upon land or structures thereupon, the atmosphere or any water course or body of water ( including groundwater), which may occur or be alleged to have occurred as a result of or in connection with any actions or omissions or otherwise of the Subcontractor, its employees and/or agents, or anyone under its direction or control; or on its behalf, whether or not on the site of the Contractor.

**Additional Indemnification Language**  
**(for the Company use when performing subcontracted work).**

The Company will not be responsible for the presence of any microbial matter due to circumstances out of our control either during or after the job is complete.

## Mold Prevention Guidelines

Always remember the key to mold control is moisture control! The following prevention guidelines will assist you in reducing the likelihood of mold problem at your project.

### New Construction

1. Do not allow foundations to stay wet. Provide drainage and slope the ground away from foundation as soon as possible.
2. "Dry in" the structure as soon as possible.
3. Where water is entering the structure, provide temporary controls until the permanent controls can be installed.
4. Promptly clean and dry areas where water has accumulated. Use pumps, wet vacuums, and fans as necessary.
5. Store building materials where they will not get wet. Pay close attention to dry wall, carpeting, lumber, ceiling tile, block, insulation, and other porous materials.
6. Set material on dunnage or pallets where feasible. Ensure that if a material is covered with tarpaulins that it can "breathe".
7. **Do not install material/s that shows signs of mold growth.**
8. **Any material that develops mold growth after installation must be evaluated to determine why it developed. Mold must be cleaned or the material removed.**

### Demolition

1. Include mold in the demolition engineering survey and plan.
2. Fix leaky plumbing and leaks in the building envelope as soon as possible.
3. Promptly clean up any water produced from the demolition process.
4. Watch for condensation and wet spots. Fix all source(s) of moisture problem(s) as soon as possible.
5. Maintain low indoor humidity, below 60% relative humidity (RH), ideally 30-50%, if possible.
6. Continue to communicate with building occupants, as appropriate to the situation.

### Expansions

1. Provide controls to prevent water from entering the construction process and/or occupied space.
2. Maintain the existing building envelope as long as possible.
3. Promptly clean up any water that may have entered the existing building.
4. Maintain the integrity of the existing roof.
5. Continue to communicate with building occupants, as appropriate to the situation.

## **Mold Prevention Guidelines**

### **Page 2**

#### **Documentation**

1. Conduct a mold survey prior to conducting any work in an existing structure. Photograph any problems. Notify the building owner, in writing, of any mold problems.
2. Contact a mold expert/consultant for significant mold problems.
3. Immediately notify the architect, owner, or general contractor of any design problems that may result in a moisture problem.
4. Take detailed progress photos to prove construction was completed as designed.
5. Document any / all clean-up procedures. Ensure follow-up photos are taken.

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## STURGEON ELECTRIC



**SITE SPECIFIC**

**HEALTH AND SAFETY PLAN**

**FOR**

**Eisenhower Johnson Memorial  
Tunnel Fixed Fire Suppression  
System**

Submitted: January 15, 2015

# EMERGENCY CONTACT LIST

<b>Site Emergency Phone #</b>	<b>911</b>
<b>General Contractor #</b>	<b>(406) 579-5226</b>
<b>General Emergency</b>	<b>911</b>
<b>Police</b>	<b>911</b>
<b>Fire</b>	<b>911</b>
<b>Ambulance</b>	<b>911</b>
<b>Closest Hospital</b>	<b>(970) 468-6677</b>
<b>Occupational Health Clinic</b>	<b>(303) 831-9393</b>
<b>Poison Control Center</b>	<b>(970) 468-1003</b>
<b>Emergency MSDS Sheets</b>	

**800-451-8346** have product name and UPC code

## JOBSITE PERSONNEL

<b>PROJECT MGR</b>	<b>Jason Willis - (303) 944-1190</b> <b>Jim Shireman- (303) 591-9072</b>
<b>GENERAL F'MAN</b>	<b>Nate Ziemer- 303-472-5369</b>
<b>SAFETY ENGINEER</b>	<b>Zach Valdez- 303-591-1000</b>
<b>DISTRICT OFFICE</b>	<b>Henderson, CO 303-286-8000</b>

**DISTRICT MGR                      Scott Greenhalge 303-591-0944**

**OPERATION MGR                  Francis Marcotte 303-898-2158**

## **JOB SITE SAFETY EQUIPMENT LOCATIONS**

<b>MSDS BOOK</b>	<b>OFFICE TRAILER</b>
<b>1<sup>ST</sup> AID AND BLOOD BORNE KIT</b>	<b>ALL GANG BOXES</b>
<b>EYE WASH STATIONS</b>	<b>ALL GANG BOXES</b>
<b>FIRE EXTINGUISHER</b>	<b>ALL GANG BOXES</b>
<b>EMERGENCY EVACUATION ASSEMBLY LOCATION</b>	

# INTRODUCTION

## POLICY STATEMENT

It is the policy of Sturgeon Electric Company, Inc. 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 and health issues will be addressed by continuing assessment of our work methods, equipment, and facilities. Safety programs will be provided to insure all employees are aware of potential hazards in the work place, in the proper use of equipment and safety gear, and an awareness of hazardous chemicals which may be utilized. A Hazard Communication Program is an important part of our safety program. Employees are encouraged to actively participate in all areas of safety management and employees are encouraged to actively participate in all areas of safety management and employee suggestions concerning the need for various safety topics are welcome. Should employees encounter a situation where they feel that a safety or health risk exists, they should contact their Foreman for corrective action.

A copy of this SAFETY AND HEALTH PROGRAM can be found in the District Office.

Because of the importance placed on safety within the workplace, training will be accomplished upon initial employment and on a weekly basis.

William A. Koertner  
President & CEO, MYR Group Inc.

## SCOPE

This Health and Safety Plan (HASP) has been developed to address the health and safety concerns present at the Eisenhower/Johnson Memorial Tunnel.

## SUMMARY OF MAJOR RISKS

The following are some of the potential hazards associated with the work to be performed by Sturgeon Electric Company, Inc.; **FALL PROTECTION, TRENCHING/EXCAVATION, LOCKOUT-TAGOUT, ELECTRICAL HAZARDS, CONFINED SPACE.**

# PROJECT ORGANIZATION AND RESPONSIBILITIES

## EMPLOYEE LIST

### GENERAL FOREMAN RESPONSIBILITIES

The General Foreman for this project is Nate Ziemer. The General Foreman responsibilities are as follows as specified in the Corporate Safety Program.

- Ensure implementation of and compliance with the Corporate Safety Program and District safety guidelines.
- Review major incident reports to ensure correctness and completeness and take appropriate actions to prevent recurrence.
- Actively participate in safety committees if applicable.

- Be aware of all safety considerations when introducing a new process, procedure, machine or material in the workplace.
- Ensure that work crews comply with safety related activities and responsibilities of Company training requirements, safety procedures and programs.
- Consistently and fairly enforce all company safety rules. Apply the appropriate Company disciplinary procedures for those employees who violate safety rules.
- Review job site(s) daily to eliminate hazards.
- Ensure that the designated competent person is trained and certified for the work (ie: confined space, trenching/excavation, scaffolding and fall protection)

## REGIONAL SAFETY SUPERVISOR

The Regional Safety Supervisor is Chuck Soderquist. The Safety Supervisor responsibilities are as follows as specified in the Corporate Safety Program.

- Provide for the development and approval of the HASP
- Coordinate with the Site Safety Representative for new or revised safety procedures for field operations
- Coordinate all Safety Program activities.
- Act as a liaison between management, outside local safety agencies, and insurance carrier.
- Coordinate with district operations personnel establishing minimum safety standards, safe work procedures, specified safety rules and regulations as they pertain to district specific concerns.
- Create a system for communicating with all employees on matters relating to safety and health. The communication program shall consist of one or more of the following:

- A. General work force and/or department safety meetings
- B. Formal safety training in safe work procedures
- C. Posting of safety rules, safe work procedures, inspection results, safety committee meeting minutes, and other safety related materials
- D. An anonymous safety suggestion system
  - Coordinate, monitor and provide technical support for the District Safety Committees where required.
  - Coordinate and conduct periodic job site visits of all crews to identify unsafe conditions and unsafe work practices. Document and forward to the Corporate Safety Department the visits on the respective MYR Group Form.
  - In addition to the periodic inspections, coordinate supplemental inspections whenever:
- E. New processes, equipment or substances are introduced.
- F. New or previously unrecognized hazards are identified.
  - Verify that corrective measures are completed in a timely fashion for any hazards identified.
  - Review all injury and illness investigation reports and verify corrective actions have been completed. When feasible investigate injuries and illnesses to determine cause and take action(s) to prevent recurrence. When feasible, assist supervision with investigating all lost time accidents. Utilize and assist the Safety Action Team when dispatched by a company Vice President and/or the Vice President of Safety. Send the accident investigation to:

**Vice President Safety**  
**MYR Group Inc.**  
**1701 West Golf Road, Suite 1012**  
**Rolling Meadows, IL 6008-4270**

- Coordinate and educate district operations personnel with establishing training programs for recognized hazards, as follows:
  - G. For All New Employees: For all employees given new job assignments for which training has not been given.
  - H. Whenever new substances, processes, procedures, or equipment are introduced to the work place and represent a new hazard.
  - I. Whenever MYR Group is made aware of a new or previously unrecognized hazard.
  - J. For District Managers, Operations Managers, Supervisors and Foremen to familiarize them with the safety and health hazards to which employees under their immediate direction and control may be exposed.
- Be knowledgeable in applicable ANSI, EPA, OSHA Standards, 29 CFR 1910, 29 CFR 1926, and other applicable standards. Ensure compliance with the Hazard Communication Program, Emergency Action Plan, Fire Prevention Plan, Confined Space Entry Program, Trenching and Excavation Program, and any other programs required by OSHA and the Corporate Safety Department.
- Where applicable be currently certified to train employees or teach courses (i.e., CPR, First Aid, OSHA out reach programs, etc.)
- Verify that emergency numbers are posted and have been checked for accuracy.
- Maintain a safety bulletin board and verify that required safety, insurance, and substance abuse help line information and other notices as required are posted.
- Monitor and assist with consistent and fair enforcement of all company safety rules.

## SITE SAFETY SUPERVISOR

The Site Safety Supervisor for this project is Chris Griego. The Site Safety Supervisor responsibilities are as follows as specified in the Corporate Safety Program.

- Enforce the provisions of the HASP
- Maintain a safety bulletin board and verify that required safety, insurance, and substance abuse help line information and other notices as required are posted.
- Ensure that adequate first-aid supplies are maintained.
- Be certified as a competent person for the following work procedures; trenching/ excavation, confined space, scaffolding and fall protection.

## SITE REQUIREMENTS

**SITE ORIENTATION** New hire orientation is done at Henderson, CO.

**SITE RULES** Non Smoking jobsite

**SITE SECURITY** Gang boxes are to be locked at end of work day.

# VEHICLES AND EQUIPMENT

- Safety belts are required at all times in all company vehicles
- Drivers must know and obey all State, Local and plant motor vehicle laws / rules that apply to the operation of their vehicle
- All vehicles shall have at a minimum a first aid kit, blood borne pathogen kit and an ABC fire extinguisher
- Never permit an unauthorized person to use or ride in a company vehicle

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# Definitions

---

## ***Accident / Incident***

---

An unplanned, unexpected or undesirable event that results in damage, personal injury, or harm to machinery, personnel or property.

## ***Affected Person (LOTO)***

---

An employee whose job requires him or her to operate or use a machine or equipment in which servicing or maintenance is being performed under lockout or tagout, or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.

## ***Attendant***

---

An employee assigned to remain immediately outside the entrance to an Enclosed Space or Confined Space to render assistance as needed to employees inside the space.

## ***Authorized Person***

---

An employee who has permission from the Management or the Person-In-Charge to enter a designated work area and perform specific work tasks.

## ***Authorized Person (LOTO)***

---

An employee who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An Affected Person becomes an Authorized Person when that employee's duties include performing servicing or maintenance.

## ***Bonding***

---

The electrical interconnection of conductive parts, designed to maintain a common electrical potential.

## ***Bracket / Master Grounding***

---

A grounding method where temporary Ground Sets are installed on both sides of the work site.

## ***Cable, Conductor or Line***

---

A material usually in the form of a wire, cable or bus bar suitable for carrying an electric current. This cable, conductor or line may contain an outer jacket of insulation or unjacketed bare metallic wire / cable.

## ***Clearance***

---

The unobstructed (clear) distance between two objects measured surface to surface.

### ***Cluster Bar / Cluster Bar Support***

---

A terminal that is temporarily attached to the structure to support (it may serve to establish an equipotential zone) and provide a bar that will accommodate at least two grounding clamps and may have terminals to accommodate grounding cables.

### ***Combustible Liquid***

---

Any liquid having a flash point at or above 140° F and below 200° F.

### ***Competent Person***

---

An employee who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to personnel, and who has the authorization to take prompt corrective measures to eliminate them.

### ***Conductor / Line***

---

A wire or combination of wires stranded together, not Insulated from one another, and suitable for carrying an electric current. The conductor may be bare or Insulated.

### ***Confined Space***

---

A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, vaults, and pits); and
- Is not designed for continuous occupancy.

### ***Customer***

---

An organization or entity that purchases services from the company. Typically, the Customer is a utility services provider, general contractor, construction management company or distributor or utility services.

### ***Deenergized***

---

Disconnected from all sources of electrical supply by open switches, disconnecting devices, open taps, removed jumpers, or by other means.

### ***Dielectric***

---

An insulating medium that intervenes between two conductors or metallic surfaces. Typically, a dielectric material is a poor conductor of electricity.

## ***Electrical Transmission and Distribution (ET&D) Partnership Best Practices***

---

A program, procedure or work method developed by or in cooperation with any of the established industry associations. (e.g., NECA, IBEW, OSHA, EEI)

### ***Enclosed Space***

---

A work space, such as a manhole, vault, tunnel, shaft or other space that has a limited means of egress or entry, that is designed for periodic employee entry under normal operating conditions, and that under normal conditions does not contain a Hazardous Atmosphere, but may contain a Hazardous Atmosphere under abnormal conditions.

### ***Energized (Live)***

---

Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of the earth.

### ***Energy Source***

---

Any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, nuclear, hydro, gravitational or other energy source that when released could cause injury to an individual.

### ***Entrant***

---

An employee who enters a Confined Space or Enclosed Space to perform work tasks.

### ***Equipotential / Equipotential Work Zone (EPZ)***

---

- An identical state of electrical potential for two or more items. For the purposes of Personal Protective Grounding (PPG), a near- identical state of electrical potential.
- A work zone that is placed at a near-identical state of electrical potential by the installation of Personal Protective Grounding devices.

### ***Excavation***

---

Any man-made cut, cavity, depression or trench in an earth surface that is formed by earth removal.

### ***Excavation, Trench***

---

A narrow excavation in which the depth is greater than the width and the width does not exceed fifteen (15) feet.

### ***Exposed (Electrical)***

---

Any electrical conductor, cable, part or equipment which is accessible to personnel and which is not shielded from contact. Extension cords and power-tool cords are excluded from this definition.

### ***Exposure Limit***

---

An established concentration, which if not exceeded will not generally cause adverse effects to the exposed employee.

### ***Extended Reach***

---

The full reach (extended arm and hand) of an employee in any direction which includes the length of any tools in the hand. See also, Minimum Approach Distance.

### ***Fall-Arrest System***

---

Also called Personal Fall-Arrest System (PFAS). A system consisting of a body harness, lanyard, connectors and anchorage, with or without an energy-absorbing device, to limit the forces an employee can experience during a fall.

### ***Fall-Prevention System***

---

- A system which may include a positioning device system intended to prevent an employee from falling from an elevation.
- A system which prevents employees from being exposed to a fall hazard; either by eliminating work at elevation, installing guard rails or utilizing a restraint system consisting of a body harness, lanyard, connectors and anchorage.

### ***Fault Current***

---

A current that flows from one conductor to Ground or to another conductor caused by an abnormal connection (including an arc) between the two.

### ***Flame Resistant (FR)***

---

Any material which prevents, terminates or inhibits combustion following the application of a flaming or non-flaming source of ignition.

### ***Flammable Liquid***

---

Any liquid having a flash point below 140°F (37.8°C) and having a vapor pressure not exceeding absolute pressure of 40 p.s.i. (276 kPa) at 100°F (37.8°C).

### ***Flash Point***

---

The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

## ***Ground Set***

---

A system of ground clamps and jacketed cables suitable for carrying fault current.

## ***Grounded***

---

A conducting connection, whether intentional or accidental, by which an electrical circuit or equipment is connected to earth, or to some conductive body of relatively large extent that serves in place of the earth, resulting in the circuit or equipment to be grounded.

## ***Hazardous Atmosphere***

---

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

- Flammable gas, vapor or mist in excess of 10% of the lower flammable limit;
- Airborne concentration of dust at a concentration that exceeds the LFL, Lower Flammability Limit, or LEL, Lower Explosive Limit;
- Oxygen content less than 19.5% or greater than 23.5%; or
- Any other atmospheric condition that is immediately dangerous to life and health.

## ***Hazardous Materials identification System (HMIS) Label***

---

A rectangular label to provide substance-specific information. The label contains four colored areas, blue, red, yellow and white. Each colored area will have a number from 0 to 4. Zero (0) identifying no hazard, and four (4) identifying a high hazard.

## ***Hazardous Substance***

---

- Any substance designated or listed in which exposure to the substance results or may result in adverse health or safety effects to personnel;
- Any substance defined under section 101 (14) of CERCLA, Comprehensive Environmental Response, Compensation, and Liability Act;
- Any biologic agent or other disease-causing agent which if ingested, consumed or inhaled may potentially cause death, cancer, genetic mutation, physical deformity, abnormal behavior, or disease;
- Any substance listed by the USDOT, United States Department of Transportation, as a hazardous material;
- A hazardous waste or combination of wastes.

## ***Hot Work***

---

Any operation that produces heat, sparks, or flames such as welding, cutting, brazing, soldering, grinding or other similar activity.

### ***Insulating Protective Equipment (IPE)***

---

Devices such as blankets, line hose, hard plastic covers, insulating covers, hot sticks, mats and other devices that are installed to insulate and isolate energized conductors or parts.

#### ***Insulated***

---

- Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.
- Protection of an Energized component by surrounding it with a material or air that prevents the transmission of electricity.

#### ***Isolated***

---

- Physically separated, electrically and mechanically, from other conducting surfaces or electrical sources of energy. The act of separating an energized component from other energized or grounded parts.
- Not readily accessible to persons unless special means for access are used.

### ***Job Briefing***

---

A meeting conducted at the job site by the Person-in-Charge of the work that focuses on the site-specific hazards and controls associated with the work to be performed. This meeting shall be conducted in accordance with the guidelines provided in the ET&D Partnership Best Practices.

### ***Live-Line Work***

---

Work activities performed on Energized conductors or equipment with a phase-to-phase voltage exceeding 600 volts using the hot-stick technique or exceeding 69kV using bare-hand technique.

#### ***Live-Line Work (Bare Hand)***

---

Work activities performed by placing the employee at the same potential as the conductor or equipment while maintaining the required clearances from the Energized conductor/equipment to Grounded parts.

### ***Management***

---

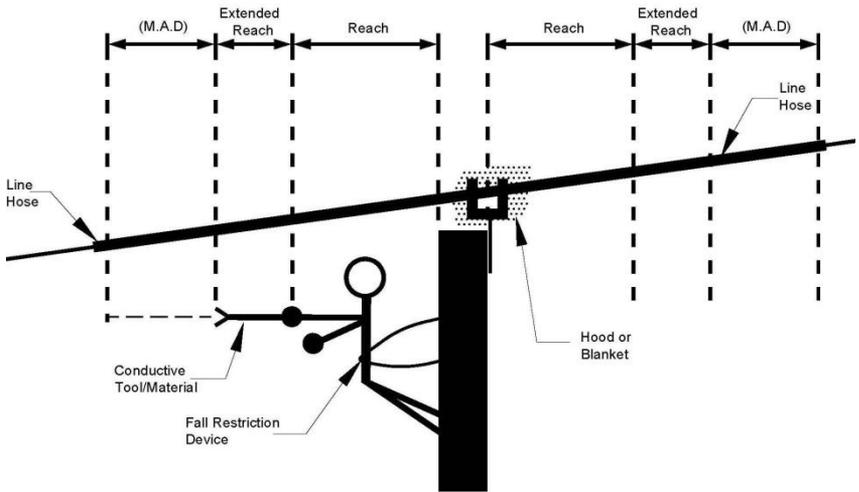
A business unit, person or group of persons assigned responsibility for a department, business unit or entity. Job titles such as, but not limited to, Project Manager, District Manager, Operations Manager, Vice

President, Director and Construction Manager are defined as Management.

**Minimum Approach Distance (M.A.D.)**

The closest distance an employee is permitted to approach an energized or grounded object. This distance is measured from the end of the employee’s reach or from the end of the conductive object being handled by the employee (also known as “Primary Contact Zone”, “Minimum Working Distance”, “Within Reach”, “Extended Reach”).

**Effective Insulate/Isolate=Reach+Extended Reach+MAD**  
**Insulate and Isolate to Prevent Contact.**



**Note:** Line Hose and Hood/Blanket  
For Illustrative Purposes Only.

**Near Miss**

An incident that could have resulted in injury, property damage or an outage.

**National Fire Protection Association (NFPA) Label**

A diamond-shaped diagram that identifies the characteristics of a substance. The label provides four quadrants with a respective color and number that identify the type of hazard and the risk. Numbers range from 0 (least severe hazard) to 4 (most severe hazard) and a white section to denote special fire fighting measures/ hazards.

## ***OSHA Strategic Partnership (OSP)***

---

A formal collaboration of industry stakeholders, working together to improve safety for personnel in the electric line construction industry.

## ***Overhead Ground Wire (OHGW)***

---

Single or multiple Grounded wire(s) placed above phase conductors for the purpose of intercepting lightning strikes in order to protect the phase conductors from direct strikes.

## ***Parallel Grounds***

---

Two single Ground Sets used as one. With both sets having the ground ends attached to the same Ground source, and both sets having the conductor end attached to the conductor source. Parallel Ground Sets shall be identical in length, size and clamp type.

## ***Personal Protective Equipment (PPE)***

---

Equipment such as safety glasses, hard hats and other items donned to protect personnel from a known hazard.

## ***Person-In-Charge***

---

An employee designated, identified or assigned supervisory duties. This person is the first-line manager or supervisor who monitors and regulates employees in their performance of assigned tasks. Person-In-Charge is synonymous with Supervisor.

## ***Personal Ground***

---

A temporary grounding conductor installed at the specific work location that is installed for the primary purpose of individual protection and/or equipotential (EPZ) grounding.

## ***Personnel Protective Ground(s) (PPG)***

---

All temporary Ground Sets installed to provide protection against electrical shock that may cause death or injury to personnel while working on Deenergized lines or equipment.

## ***Primary Zone***

---

An area identified as the M.A.D. around any Energized or potentially Energized object.

## ***Qualified Person***

---

An employee knowledgeable through training and experience in the construction, operation and associated hazards of the electric power system, equipment or tools. In addition, Electrically Qualified Persons shall be a journeyman or a designated person as defined by a recognized apprenticeship program.

### ***Rubber Glove Method***

---

A work practice in which the employees don rubber protective insulating gloves and sleeves rated for the exposure of the highest phase-to-phase voltage.

### ***Secondary (ies)***

---

- The conductors originating at the low-voltage secondary winding of a distribution transformer.
- An additional level of protection (e.g., a backup safety device- LOTO).

### ***Site-Specific Task Plan***

---

A written plan created by Management and Safety Management that:

- Identifies and evaluates the hazards;
- Provides control or mitigation strategies for the identified hazards;
- Identifies training prerequisites;
- Identifies the Qualified Person(s);
- Creates a work plan to ensure safe and effective work practices;
- Is a living document that is updated as the site conditions change or new hazards are introduced; and
- Is reviewed and approved by Safety and Management prior to the start of the work tasks.

### ***Supervisor***

---

See Person-In-Charge.

### ***Step Potential / Step Voltage***

---

The potential voltage difference between each foot of a person standing near an Energized grounded object. A person can be at risk of injury during a fault simply by standing near the Grounding point.

### ***Touch Potential / Touch Voltage***

---

The potential voltage difference between the energized object and the feet of a person in contact with an object that may be or become potentially Energized. Touch potential could be nearly the full voltage across a Grounded object if that object is Grounded at a point remote from the place where the person is in contact with an Energized or potentially Energized object.

### ***Vented Vault***

---

A vault designed and constructed with a ventilation system to provide air changes for airflow which eliminates a Hazardous Atmosphere from developing. This system will have air intakes and exhaust stacks for air circulation.

### ***Working Load Limit (WLL)***

---

Also called Safe Working Limit (SWL). The maximum weight or force that may be applied to a product, designated by the manufacturer, with respect to the center line of the product, or the designated loading area.

# Section 1      General Rules

---

## *Objective and Purpose*

This Safety Manual is intended to safeguard the lives of our employees, customers, business partners and the general public with whom contact is made through our daily operations.

An attempt has been made to identify rules covering individual precautions that shall be taken to ensure workplace safety. Employees shall not only abide by the following rules and regulations, but should take any additional precautions which may be necessary to protect themselves, fellow employees and the public.

## *Responsibilities*

### **Management, Operations Manager / District Manager**

- 1.2.1. Management shall support, implement and be accountable for the following:
  - a. Accident prevention within the business unit / department.
  - b. Assigning only Competent and Qualified Person(s)-In-Charge who understand and uphold these rules.
  - c. Ensuring that each employee receives an Employee Safety Handbook and that the Person-In-Charge has a copy of the Safety Manual.
  - d. Ensuring work is completed in compliance with company rules, Customer rules, regulatory requirements and ET&D Partnership Best Practices.
  - e. Providing safety training, skills training and Person-In-Charge training with adequate time allotted for training.
  - f. Providing and ensuring the proper use and maintenance of all required protective equipment, tools, and protective devices.
  - g. Ensuring Safety Committee meetings are performed and actively participate in these meetings.

- h. Actively participating and supporting Incident and Near-Miss investigations.
- i. Identifying and developing controls to address safety concerns prior to introducing a new process, procedure, equipment or material.
- j. Implementing fair and consistent disciplinary action when safety violations are identified.
- k. Ensuring periodic inspections of job sites are completed; and
- l. Performing periodic inspections of job sites.

**Person-In-Charge (Foreman, General Foreman)**

1.2.2. The Person-in-Charge shall support, implement and be accountable for the following:

- a. Ensuring every employee working under his or her direction is working safely.
- b. Stopping work activities when personnel place themselves in a potentially hazardous or life-threatening situation.
- c. Ensuring the execution of work in a safe manner and for the job performance of every employee under his or her direction.
- d. Ensuring that a detailed Job Briefing is completed prior to the start of work operations and if the tasks change significantly.
- e. Performing weekly safety meetings.
- f. Assigning tasks only to Qualified Persons who are capable of completing the task.
- g. Observing job sites daily and correcting unsafe acts or conditions.
- h. Instructing every employee on the reporting of Accidents.
- i. Applying a more stringent interpretation of these safety rules, as these rules are a minimum requirement.

- j. Ensure that Authorized and Qualified Persons perform inspections of tools and equipment and prohibit the use of tools or equipment judged to be unsafe.
- k. Safeguarding the work site, including employees, the public and the environment from identifiable hazards.

### **Safety Manager and Safety Director**

- 1.2.3. The Safety Manager and Safety Director shall support, implement and be accountable for the following:
  - a. Providing guidance, assistance and interpretation of the rules contained in this Safety Manual.
  - b. Supervising the Safety Personnel within his or her area of responsibility and providing guidance to the Safety Personnel.
  - c. Communicating with Management to ensure safety rules are effective and implemented properly.
  - d. Assisting Management and Person-In-Charge with the safe completion of work tasks.
  - e. Providing updates on new regulations.
  - f. Developing, revising and reviewing training programs for regulatory compliance.

### **Safety Personnel**

- 1.2.4. The Safety Personnel shall support, implement and be accountable for the following:
  - a. Auditing work sites within their area of responsibility for compliance with safety rules, company rules, Customer rules and ET&D Partnership Best Practices.
  - b. Documenting work-site audits and communicating deficiencies to Management.
  - c. Ensuring corrective measures are implemented and verifying their effectiveness.
  - d. Providing safety and health support to the Management, Person-In-Charge and employees.
  - e. Providing safety and health training to employees.

- f. Providing support with Incident investigation including follow up and completion of corrective action identified during the investigation.
- g. Coordinating, monitoring and providing technical support for safety committees.

## **Employee**

### 1.2.5. Every employee:

- a. Shall be responsible for conforming to the rules contained in the Employee Safety Handbook and rules implemented by the Person-In-Charge.
- b. Shall comprehend and implement the rules that apply to the work performed.
- c. Shall identify unsafe acts or conditions and report them to the Person-In-Charge.
- d. Has the authority to stop the work task. If the work site appears unsafe, each employee has the responsibility and authority to discuss this concern with the Person-In-Charge and correct the hazard prior to beginning the work task.
- e. Shall perform a visual inspection of safety devices, tools, machinery and equipment for defects prior to use.
- f. Shall use and operate safety devices, tools, machinery and equipment in the proper manner.
- g. Shall immediately report any injuries, Near Misses, or damage to the Person-In-Charge.
- h. Shall maintain a professional appearance while on duty. Loose hair, jewelry or articles of clothing shall be controlled to prevent accidental contact with exposed Energized conductors or equipment or rotating parts. Clothing shall be worn properly and in a professional manner.
- i. Shall attend and participate in Job Briefings and safety meetings.

## **Qualified / Competent Person**

### 1.2.6. The Qualified or Competent Person shall:

- a. Ensure compliance with the rules and procedures required for the process or task.
- b. Immediately correct any developing, recognized, or created hazard that may endanger employees, the public or property.
- c. Maintain up to date credentials/certification and qualifications for the work.
- d. Ensure required documentation is properly completed.

### *Incident Management*

#### **General**

- 1.3.1. Every Incident shall be reported immediately and no later than the end of the work shift to the Person-In-Charge.
- 1.3.2. Incidents involving the public or injuries to employees shall be reported to Management and Safety immediately.
- 1.3.3. Incidents involving injuries, illnesses, Near Misses, property damage or other serious Incidents shall be investigated by the Management and the Safety Personnel.

#### **Serious Incidents, Contacts or Burns**

- 1.3.4. In the event of a serious or fatal Accident including contacts and burns; the Person-In-Charge shall:
  - a. Contact EMS.
  - b. Immediately provide assistance to the injured.
  - c. Secure the scene and prevent unauthorized personnel from entering.
  - d. Contact the Safety Personnel and District Manager.

#### **Near Miss**

- 1.3.5. Near Misses shall be reported to the Person-In-Charge and the Safety Personnel immediately but no later than the end of the work shift.
- 1.3.6. Near Misses with high severity shall be investigated.

## **Employee Injury or Illness**

- 1.3.7. Qualified Persons may offer / administer first aid and/or CPR to the injured.
- 1.3.8. Employees or the Person-In-Charge shall contact Emergency Medical Services (EMS) for emergency services.
- 1.3.9. The Person-In-Charge shall notify the Management and the Safety Personnel.
- 1.3.10. If an injury or illness is serious or potentially serious, Management and Safety Department representatives shall be notified immediately.
- 1.3.11. The Person-In-Charge shall obtain all pertinent facts and the names of every witness.
- 1.3.12. The Person-In-Charge shall complete the company Injury / Illness Report and forward to the Safety Personnel within 24 hours.

## **Motor Vehicle**

- 1.3.13. In the event of a motor vehicle Incident, local Management and Safety shall be notified as soon as possible and:
  - a. Secure the accident area to the extent possible.
  - b. Qualified Persons may offer first aid and/or CPR.
  - c. Notify Emergency Medical Services (EMS) or law enforcement to report to scene.
  - d. DO NOT discuss or argue the cause or results of the Incident.
  - e. Answer all questions asked by a proper authority, but under no circumstances shall the employee admit fault, liability or negligence.
  - f. DO NOT sign any statement (except a citation issued by law enforcement) for anyone except Company Management.

- g. Gather supporting information such as names of involved parties, insurance companies, names of witnesses along with addresses and phone numbers.
- h. Complete the company Vehicle Incident Report and forward it to the local office within 24 hours.

### **Property Damage**

- 1.3.14. Notify Management and Safety Department representative of any property damage to customer, company or public property.
- 1.3.15. Complete the company Property Damage Report and forward to the local office within 24 hours.

### **Incidents Involving the Public**

- 1.3.16. Incidents involving the public shall be immediately reported to the District Manager or the Person-In-Charge. Employees are not authorized to speak with the press. Media inquiries shall be directed to the District Manager or Legal Department.

### **Potentially Hazardous Conditions**

- 1.3.17. Potentially hazardous conditions shall be corrected or reported promptly to the Person-In-Charge.
- 1.3.18. The Person-In-Charge shall attempt to correct the hazardous condition, barricade/demarcate/identify the area or evacuate the immediate area if the condition cannot be corrected.

### *Safety Meetings*

#### **Job Briefing**

- 1.4.1. The Person-In-Charge shall perform Job Briefings with all personnel / crew members prior to the start of any work task.
- 1.4.2. As visitors or other personnel arrive, they shall be included in the Job Briefing.
- 1.4.3. The Job Briefing shall at least cover the following:
  - a. Hazards associated with the job;

- b. Work procedures involved;
  - c. Special precautions;
  - d. Selection of Insulating & Isolating equipment;
  - e. Energy-source controls;
  - f. PPE to be used;
  - g. Emergency planning; and
  - h. Identification of Qualified Persons.
- 1.4.4. If the work or operations to be performed for that shift are repetitive and similar, one Job Briefing shall be conducted before the start of the first task. Additional Job Briefings shall be conducted if the work tasks change or significant changes to the work process are altered during the course of work.
- 1.4.5. Employees working alone shall ensure that the tasks to be performed are planned as if a briefing were conducted.
- 1.4.6. Job Briefings shall be documented and every crew member shall review, acknowledge understanding and sign the Job Briefing form.

### **Weekly Safety Meeting**

- 1.4.7. The Person-In-Charge shall ensure a safety meeting is conducted at least once per week.

### **Safety Committees**

- 1.4.8. Safety committees shall:
- a. Establish a charter that identifies roles and responsibilities,
  - b. Determine frequency of meetings,
  - c. Review Incidents, Accidents and Near Misses to identify methods to reduce the frequency and severity of Incidents;
  - d. Develop a process for periodic inspection of safety and emergency supplies; and

- e. Record and distribute minutes.

## *Policy Statements*

### **Drug Free Workplace Policy**

- 1.5.1. Employees shall comply with the Substance Abuse Policy and applicable local area testing requirements. Reference Drug Free Workplace Policy.

### **Anti-Harassment**

- 1.5.2. The Company shall not permit harassment or retaliation for good-faith reporting of a safety concern.

### **Portable Electronic Devices**

- 1.5.3. Cell phone usage while operating a vehicle shall comply with federal and state regulations.
- 1.5.4. Portable electronic devices, including cell phones are prohibited during the following activities:
  - a. Employees are within the M.A.D.;
  - b. Using text or email functions while operating a vehicle; or
  - c. Management or Customer rules prohibit use.
- 1.5.5. Use of personal cell phones is permitted for the following conditions:
  - a. At company-approved break and lunch intervals;
  - b. For emergency-response notification; or
  - c. When designated and approved by the Management.

### **My Safe Workplace Policy**

- 1.5.6. The company recommends that employees attempt to resolve any safety concern with their supervisor.
- 1.5.7. If adequate resolution has not been achieved, employees have additional recourse to correct these situations. Employees may use the reporting system – anonymously if preferred – to report any unsafe condition, at-risk action or safety issue.
- 1.5.8. My Safe Work Place contact # 1 (800) 461-9330.

## *Emergency Action Plans / Medical Services*

### **Emergency Planning**

- 1.6.1. Management shall develop and implement a site-specific emergency action plan for each job site.
- 1.6.2. Management shall develop and implement an emergency action plan at each facility. The minimum requirements of this plan include:
  - a. Procedures for reporting a fire or other emergency;
  - b. Procedures for emergency evacuation, including type of evacuation and exit route identification and assembly locations;
  - c. Procedures to be followed for employees who remain to operate critical facility/equipment/site operations before they evacuate;
  - d. Procedures to account for all personnel after evacuation;
  - e. Procedures to be followed by employees performing rescue or medical assistance duties;
  - f. The name and job title of the employee who can provide more information about the plan or an explanation of employees' duties under the plan;
  - g. Methods to provide and maintain a clear path of ingress for emergency vehicle access to a facility or work site;
  - h. Procedures for personnel assigned rescue, medical assistance or emergency response activities;
  - i. Employee training for safe and orderly evacuation of the work site or facility;
  - j. Employee training for the procedures of the emergency action plan; and
  - k. Employee retraining when the plan changes or the employee is assigned new responsibilities.

- 1.6.3. In the event of an emergency, all personnel shall evacuate.
- 1.6.4. The Person-In-Charge and Management shall ensure that EMS is readily available. Coordination and verification of EMS providers shall occur prior to the start of work tasks.
- 1.6.5. Employees trained in first aid and CPR shall be available at the work site.
- 1.6.6. The Person-In-Charge shall periodically inspect and ensure that exit routes are clear and maintained. Exit routes shall be identified and the locations provided to employees and the public.
- 1.6.7. Permanent exit routes in offices, warehouses and buildings shall be legibly identified.

### **First Aid and Medical Supplies**

- 1.6.8. Management shall ensure that adequate first aid and bloodborne pathogen supplies are readily available and maintained at all work sites.
- 1.6.9. First aid supplies shall be inspected and restocked.
- 1.6.10. Eye-wash stations shall be provided in garage areas, shop areas and chemical use/storage locations. Eye-wash equipment shall be inspected monthly.

### **Bloodborne Pathogens**

- 1.6.11. Management shall ensure the development, maintenance and administration of a written bloodborne pathogens program for employees with occupational exposure.

## *Housekeeping*

### **General**

- 1.7.1. Permanent aisles, walkways and passages shall be kept clean and maintained free of obstructions and tripping hazards.
- 1.7.2. Egress paths shall be legibly marked, kept clean and maintained free of obstructions and tripping hazards.

- 1.7.3. Permanent aisles, walkways and passages in warehouses and shops shall be marked, kept clean and maintained free of obstructions and tripping hazards.
- 1.7.4. Equipment, machinery and tools shall be properly stowed or stored.
- 1.7.5. Stored or stacked material shall not create a hazard from tipping, falling or disruption.
- 1.7.6. Trash, rubbish, wastepaper, rags and debris shall be disposed of properly.
- 1.7.7. Trash with sharp edges shall be discarded in a manner in which it will not create a hazard to other personnel.
- 1.7.8. Spills shall be cleaned up properly.
- 1.7.9. Hazardous areas shall have appropriate floor markings, signage, or be barricaded.
- 1.7.10. Floors shall be maintained in a serviceable condition.
- 1.7.11. Protruding nails and staples shall be removed from lumber material unless the lumber is to be disposed of.
- 1.7.12. Trip hazards shall be controlled or eliminated.

### **Storage Yards**

- 1.7.13. Non-compatible materials shall be segregated in storage.
- 1.7.14. Structural steel, poles, pipe, bar stock and other cylindrical materials shall be blocked unless racked.

### **Shops and Tool Rooms**

- 1.7.15. Tools and materials shall be stored properly.
- 1.7.16. Keep floors free of oil, grease and other slippery substances.
- 1.7.17. Materials in racks shall be stored properly.
- 1.7.18. Flammable, combustible and toxic materials shall be stored in approved, labeled containers and only in designated locations.
- 1.7.19. Oily rags shall be disposed of in approved containers.

- 1.7.20. Combustible liquids shall be disposed of in accordance with federal, state and local requirements.
- 1.7.21. Fire extinguishers shall be mounted in appropriate locations near flammable or combustible materials and as required by federal, state and local fire authority.

### **Field Locations and Vehicles**

- 1.7.22. Field offices and vehicles shall be kept clean and neat.
- 1.7.23. Work areas shall be kept clean.
- 1.7.24. Flammable, combustible and toxic materials shall be stored in approved, labeled containers and only in designated locations.
- 1.7.25. Vehicles shall be kept neat and orderly. Trailer decks, truck beds, and employee access locations on vehicles shall be kept clean.
- 1.7.26. Tools and materials shall be stored in their proper places.

### **Offices**

- 1.7.27. Desk drawers, cabinet doors, slides and files shall not be unnecessarily left open.
- 1.7.28. Office locations shall be kept clean and neat.
- 1.7.29. Only one drawer in a file cabinet shall be opened at a time.
- 1.7.30. Combustible materials shall be stored in designated locations. These locations shall not be in egress routes or near exit doors.
- 1.7.31. Permanent use of extension cords are not permitted in office areas, walkways or across doorways. Proper electrical outlets shall be installed.
- 1.7.32. Travel paths, hallways and walkways shall be kept free of tripping hazards.
- 1.7.33. Fire extinguishers shall be placed in egress paths.

## Minimum Approach Distances (M.A.D.)

### Transmission, Distribution and Substation

- 1.8.1. Every crew member shall ensure that employees do not encroach or take any conductive object closer to Exposed Energized parts than the distances specified in the following tables unless:
- The employee is effectively Isolated and Insulated; or
  - The employee is performing the Live-Line Bare-Hand methods.

**Table 1.8.1 Minimum Approach Distances AC Voltages**

Nominal voltage in kilovolts (kV) phase to phase	Distance			
	Phase-to-ground exposure		Phase-to-phase exposure	
	(ft-in)	(m)	(ft-in)	(m)
0.005 to 1.0	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1.1 to 15.0	2-2	0.65	2-3	0.67
15.1 to 36.0	2-7	0.77	2-10	0.86
36.1 to 46.0	2-9	0.84	3-2	0.96
46.1 to 72.5	3-3	1.00	3-11	1.20
72.6 to 121	3-3	1.00	4-3	1.29
138 to 145	3-7	1.09	4-11	1.50
161 to 169	4-0	1.22	5-8	1.71
230 to 242	5-3	1.59	7-6	2.27
345 to 362	8-6	2.59	12-6	3.80
500 to 550	11-3	3.42	18-1	5.50
765 to 800	14-11	4.53	26-0	7.91

Reference OSHA 1910.269 Table R-6

<sup>1</sup> Avoid Contact

These distances take into consideration the highest switching surge an employee will be exposed to on any system with air as the insulating medium and the maximum voltages shown. The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

- 1.8.2. Work site locations in excess of 3000 feet (900m) above mean sea level shall have the M.A.D. distance

recalculated by multiplying the distances from Table 1.8.1 by the correction factors in Table 1.8.2.

**Table 1.8.2 Altitude Correction Factor**

Altitude		Correction	Altitude		Correction
(FT)	(M)	Factor	(FT)	(M)	Factor
3000	900	1.0	10000	3000	1.20
4000	1200	1.02	12000	3600	1.25
5000	1500	1.05	14000	4200	1.30
6000	1800	1.08	16000	4800	1.35
7000	2100	1.11	18000	5400	1.39
8000	2400	1.14	20000	6000	1.44
9000	2700	1.17			

Reference 29 CFR 1910.269 Table R-10

1.8.3. Every crew member shall ensure that employees do not encroach or take any conductive object closer to Exposed Energized parts than the distances specified in the following tables unless:

- a. The employee is effectively Isolated and Insulated; or
- b. The employee is performing the Live-Line Bare-Hand Methods.

**Table 1.8.3 Minimum Approach Distances DC Voltages**

Maximum Anticipated per-unit transient over voltage	Maximum phase-to-ground voltage in kilovolts (kV)				
	250	400	500	600	750
1.5 or less	3ft 8 in	5 ft 3 in	6 ft 9 in	8 ft 7 in	11 ft 10 in
1.6	3 ft 10 in	5 ft 7 in	7 ft 4 in	9 ft 5 in	13 ft 1 in
1.7	4 ft 1 in	6 ft 0 in	7 ft 11 in	10 ft 3 in	14 ft 4 in
1.8	4 ft 3 in	6 ft 5 in	8 ft 7 in	11 ft 2 in	15 ft 9 in

Note 1: The distances specified in this table may be applied only where the maximum anticipated

per-unit overvoltage has been determined by engineering analysis and has been supplied by the customer.

**If this factor is not known, a factor of 1.8 shall be assumed.**

Note 2: The distances listed in this table are the air, bare-hand and live-line tool distances.

- 1.8.4. Every crew member shall ensure that employees do not encroach or cross the boundaries specified below unless they have the proper PPE and approval from the Person-In-Charge.

**Table 1.8.4 Minimum Approach Distances (C&I)  
Commercial and Industrial**

System Voltage VAC	Limited Approach Boundary		Restricted Approach Boundary	Prohibited Approach Boundary
	Movable	Fixed		
< 50 (less than)	Not specified	Not specified	Not specified	Not specified
50 – 300	10 ft	3 ft 6 in	1 ft	0 ft 1 in
301- 750	10 ft	3 ft 6 in	2 ft 2 in	0 ft 7 in
751 – 15 kV	10 ft	5 ft	2ft 7 in	0 ft 10 in
15.1 – 36 kV	10 ft	6 ft	2 ft 9 in	1 ft 5 in
36.1 – 46 kV	10 ft	8 ft	3 ft 3 in	2 ft 2 in

Reference NFPA 70E -2009, Table 130.2C

### *Illumination*

- 1.9.1. All offices, shops, tool rooms and storage areas shall have illumination of at least five (5) foot candles.
- 1.9.2. Work site illumination is referenced in Section 17.2.4.

### *Ladders*

#### **General**

- 1.10.1. Only Qualified and Authorized Persons shall ascend and/or descend ladders.
- 1.10.2. Ladders shall only be used for their intended purpose.
- 1.10.3. Ladders shall be inspected prior to use.

- 1.10.4. Employees ascending or descending ladders shall face the ladder and use three (3) points of contact at all times while maintaining a grip of the sides or rungs.
- 1.10.5. Employees shall not carry anything in the hands that prevents a solid grip of the ladder while ascending or descending a ladder.
- 1.10.6. Defective ladders shall be removed from service and an Out Of Service tag affixed.
- 1.10.7. Ladders shall be secured to prevent displacement.
- 1.10.8. Never place ladders on or against moveable objects (including vehicles) unless the object has been properly secured to prevent movement.
- 1.10.9. Portable ladders with metallic side rails are prohibited near electrical equipment except in Energized extra-high voltage (>230kV) areas.
- 1.10.10. Portable ladders used to access an upper landing surface shall extend at least three (3) feet above the upper landing surface.
- 1.10.11. Ladders shall not be loaded beyond their rated capacity.
- 1.10.12. Unsecured ladders shall not be left unattended.
- 1.10.13. Ladders shall be placed in storage areas or in a position where they cannot fall after use.
- 1.10.14. Ladders shall be secured while in storage.
- 1.10.15. Ladders shall not be spliced.
- 1.10.16. Ladders placed in aisles or near doorways shall be properly guarded by an attendant or the installation of barricades.
- 1.10.17. Ladders in transport shall be fastened securely in the proper transport position.
- 1.10.18. Employees shall not over-reach the stability of the ladder. If the work is beyond safe reach, move the

ladder so that the work can be done without over-reaching.

### **Extension Ladders**

- 1.10.19. The base of a straight or extension ladder shall be positioned at  $\frac{1}{4}$  the distance of its working height. (Example: a ladder at 16 feet of elevation, the base shall be 4 feet back from that position.)
- 1.10.20. The ladder shall be placed on a firm and level surface. Ladders that cannot be placed on firm and level surfaces shall utilize ladder-leveling equipment or have the area leveled to constitute a firm, level surface.
- 1.10.21. Extension ladders shall be secured at the top, bottom or both ends.
- 1.10.22. Ladders placed against poles shall be secured at the top.
- 1.10.23. Verify that the upper section latches have engaged prior to climbing the ladder.
- 1.10.24. Ladders shall maintain the manufacturer-designed overlap.

### **Step Ladders**

- 1.10.25. Each leg of a step ladder shall be placed on a firm, flat and level surface with all legs bearing on the ground surface. Step ladders that cannot be placed on flat, level surfaces shall have the area leveled to constitute a firm, level surface.
- 1.10.26. The locking bar to secure the legs shall be properly locked while the ladder is in use.
- 1.10.27. Employees shall not stand or sit on the top two (2) steps of the step ladder.

### **Fixed Ladders**

- 1.10.28. Fixed ladders shall be visually inspected for integrity prior to use.

- 1.10.29. Employees ascending or descending fixed ladders with integral fall-restraint systems shall employ the fall protection system for all ascending and descending.

### **Hook Ladders**

- 1.10.30. Ladders shall be used per manufacturer specifications and within the load rating.
- 1.10.31. Employees accessing or working from hook ladders shall employ appropriate ET&D Partnership Best Practice methods.

### *Scaffolds*

- 1.11.1. Scaffolds shall only be erected, modified, dismantled or relocated under the supervision of a Competent Person. Scaffold installations shall be designed by a Qualified Person.
- 1.11.2. Fall protection for erection and dismantling shall be determined by the Competent Person.
- 1.11.3. Scaffolds shall be inspected prior to use.
- 1.11.4. Footings, bases or anchorages for scaffolds shall be capable of supporting four times (4X) the maximum intended load without settling or displacement.
- 1.11.5. Scaffolds shall be level, plumb and square prior to employees accessing or working on the scaffold.
- 1.11.6. Open sides of a scaffold with fall exposures exceeding six (6) feet shall have guard rails installed.
- 1.11.7. Toe boards shall be installed on all open edges where feasible. If toe boards are not feasible, a controlled access zone shall be installed at the appropriate safe distance as determined by the Competent Person.
- 1.11.8. Appropriate access and egress shall be maintained to all working levels.

- 1.11.9. Overhead protection shall be provided to personnel working at lower levels when exposed to overhead hazards.
- 1.11.10. Scaffold towers shall be properly secured to prevent tipping when they reach heights of twenty-five (25) feet or four times (4X) the smallest base dimension.
- 1.11.11. The Competent Person shall determine when employees shall exit the scaffold during periods of high winds, storms or lightning.
- 1.11.12. Scaffolds shall maintain appropriate clearances from power lines.

**Table 1.11 Scaffold Clearance from Electrical Lines**

Voltage	Insulated Lines		Uninsulated Lines	
	Minimum Distance	Alternatives	Minimum Distance	Alternatives
≤ 300 VAC	3 feet		10 feet	
300 VAC to 50 kV	10 feet		10 feet	
≥ 50 kV	10 feet plus 0.4 inches for each 1 kV over 50 kV	2 times the length of the line insulator, never less than 10 feet.	10 feet plus 0.4 inches for each 1 kV over 50 kV.	2 times the length of the line insulator, never less than 10 feet.

**Mobile Scaffolds**

- 1.11.13. A Competent Person shall ensure that caster screw jacks are properly pinned in place.
- 1.11.14. Mobile scaffolds shall only be moved on level floors free of holes or obstructions.
- 1.11.15. Employees shall not be positioned on mobile scaffolds when they are moved.
- 1.11.16. Materials, tools or equipment shall only be raised or lowered by means of a handline. Employees shall not carry anything in their hands while climbing or descending.

1.11.17. Tools, materials and equipment shall be secured or contained by toe boards, containers or lashings on elevated surfaces. If these items cannot be secured or contained, they shall be lowered to the ground level.

1.11.18. Personnel shall be protected from falling objects by toe boards or controlled access zones.

### *Fire Prevention / Fire Protection*

1.12.1. Management shall develop, maintain and administer a written Fire Prevention Plan for incipient fires. The plan shall identify:

- a. Major fire hazards and control;
- b. Procedures for control of fuel source hazards; and
- c. Procedures and responsibility for maintenance of equipment for fire suppression.

### **Fire Extinguishers**

1.12.2. Fire extinguishers shall be readily available in all vehicles, shops, field offices, warehouses, tool rooms and office locations.

- a. Fire extinguishers shall be compatible with the type of materials present in the local environment.

1.12.3. Fire extinguishers shall be inspected monthly and tested annually.

1.12.4. Fire extinguishers placed in fixed locations in shops, tool rooms and offices shall have appropriate signage installed to identify the location of the equipment.

1.12.5. Fire extinguishers and firefighting equipment shall be readily accessible at all times. Obstructions to firefighting equipment are not permitted.

1.12.6. Employees shall be familiar with the location of the firefighting equipment and the safe operation of the equipment. Employees shall receive training annually.

- 1.12.7. Firefighting equipment shall only be used for the intended purpose.

## **Fire Prevention**

- 1.12.8. Combustible materials shall not be permitted to accumulate.
- 1.12.9. Signs prohibiting smoking, open flames or sparks shall be displayed where smoking or open flames constitute a fire hazard.
- 1.12.10. Materials that may spontaneously combust such as oily rags shall be contained in approved containers.
- 1.12.11. All flammable and combustible materials shall be stored in designated locations.
- 1.12.12. Hot Work shall only be performed when proper authorization has been received from the Customer representative, designated inspector, prime contractor or the Person-In-Charge.
- 1.12.13. When Hot Work is performed, fire watchers shall be stationed adjacent to Hot Work operations when combustible materials are:
  - a. Within 35 feet;
  - b. Within the distance and requirements specified in a Hot Work permit; or
  - c. Adjacent to the opposite side of a metal partition, walls, ceiling, floor or roof.
- 1.12.14. Fire watchers shall be stationed for the duration of the Hot Work operation and at least thirty (30) minutes after the operation is finished.
- 1.12.15. Fire Watchers shall be trained to:
  - a. Identify combustible materials and the onset of a fire;
  - b. Operate a fire extinguisher;
  - c. Identify the type of fire; and
  - d. Initiate an alarm in the event of a fire.

## *Working over or Near Water*

- 1.13.1. When working over or adjacent to navigable waterways, Management shall ensure a Site-Specific Task Plan is developed approved and implemented.
- 1.13.2. Personnel shall comply with the applicable federal, state local, and USCG (US Coast Guard) regulations.

## *Manual Material Handling (Back Injury Prevention)*

- 1.14.1. The Person-In-Charge shall ensure employees are trained in proper lifting and carrying methods.
- 1.14.2. Employees shall never carry a load that exceeds their abilities and obtain help with the object to be lifted. Objects that exceed the physical abilities shall be lifted with the assistance of additional personnel or mechanical methods.
- 1.14.3. Employees shall never carry a load that obstructs their vision unless assisted by a spotter.
- 1.14.4. When multiple employees are lifting or pulling together, one employee shall give the signals for the group.
- 1.14.5. Employees shall use gloves or hand pads on sharp, rough or heavy materials.
- 1.14.6. Employees shall not carry pipes, ground rods, and other conductive material above the shoulders near Exposed Energized electrical equipment.

## *Out Of Service Tagging Policy*

- 1.15.1. Any defective tool, vehicle or equipment shall be tagged “Out Of Service” and removed from service until repaired.
- 1.15.2. The damage or defect shall be noted on the tag.
- 1.15.3. The Person-In-Charge shall ensure that the tagged tools are removed from service and returned to the local shop.

## *Signage and Warning Signs*

- 1.16.1. Warning (Caution or Notice) signs or Danger signs shall be posted in areas that may constitute a safety hazard or imminent danger condition.
- 1.16.2. Signage shall be posted where visible to personnel entering the area.

## *Working Areas*

- 1.17.1. The Person-In-Charge shall ensure:
  - a. The establishment of designated work zones;
  - b. Signage, barricades, delineators or other effective means are installed to delineate the work space;
  - c. The work zones are maintained and controlled; and
  - d. Work zone signage, barriers, delineators, etc., are removed when tasks are complete.

## *Facilities*

- 1.18.1. Load-bearing limits shall be posted in elevated storage areas.
- 1.18.2. Overhead clearance limitations in frequently traveled areas shall be posted.
- 1.18.3. Personnel exposed to falls in excess of four (4) feet on elevated walkways or overhead storage areas shall be protected by guard rail systems.
- 1.18.4. Stairways and temporary stairways shall have hand rails installed when elevation changes exceed thirty (30) inches or four risers.
- 1.18.5. Facility evacuation plans shall be posted at each office assigning duties for emergency personnel and the identified assembly point.
- 1.18.6. Openings in floors shall have appropriate covers or barricades.

## *Extension Cords, Cables and GFCI*

- 1.19.1. Extension cords, GFCI devices and electrical equipment shall be inspected prior to use.
- 1.19.2. Extension cords shall be of the heavy-duty type, sized for the load and a minimum of three-wire.
- 1.19.3. Flat extension cords are not permitted.
- 1.19.4. Extension cords, cables, welding cables and any other electrical cables shall not constitute a tripping hazard.
- 1.19.5. Surge-protector type extension cords are permitted for devices that require surge protection.
- 1.19.6. Extension cords shall be protected from vehicular traffic.
- 1.19.7. Job-made extension cords shall not be permitted.
- 1.19.8. GFCI Protection shall be tested prior to use.
- 1.19.9. GFCI devices shall be available and used in the following situations:
  - a. Wet or damp locations (bathrooms, kitchens, wash down areas, outdoors, etc.);
  - b. Generators exceeding five (5) kW;
  - c. Temporary extension cords; and
  - d. Tools used in wet environments.

## *Electrical Panels*

- 1.20.1. Electrical Panels shall have a minimum of thirty-six (36) inches of clear space in front of the panel and the width of the space shall be a minimum of thirty (30) inches or sufficient to allow doors to open ninety (90) degrees.
- 1.20.2. Overcurrent protective devices (disconnects, fuses, circuit breakers, etc.) shall be labeled to identify the equipment or location to which they supply power.

- 1.20.3. Electrical panels shall remain closed at all times and only opened for servicing and maintenance by Qualified Persons.
- 1.20.4. Openings for cable, circuit breakers, conduit, knockouts, or other equipment shall be effectively closed when not used.
- 1.20.5. Damaged electrical panels, outlets, switches, or receptacles shall be repaired immediately.
- 1.20.6. Covers shall be secured at all times when panels are in normal operating condition.

### *Machine Guarding*

- 1.21.1. Point of operation guarding is required for exposure to:
  - a. Rotating parts;
  - b. Flying chips and sparks;
  - c. Ingoing nip points;
  - d. Impact operations;
  - e. Compression operations including mechanical presses;
  - f. Cutting, sawing or grinding operations; and
  - g. Belts, sprockets, chains, chain drives or gears.
- 1.21.2. Guards shall be affixed and secured to the machine.
- 1.21.3. Fixed machinery shall be anchored to prevent movement.
- 1.21.4. Fences, rests, barriers and other guards shall be operational and function properly.
- 1.21.5. Guards shall not be defeated.

### *Employee Safeguards*

- 1.22.1. Employees shall be protected from:

- a. Falling into openings in walls, floors, open holes or other openings with fall hazards exceeding six (6) feet. These openings shall be protected by guard rails or covers, or employees shall don Personal Fall-Arrest Systems (PFAS) when positioned within six (6) feet of the opening.
  - b. Falling onto dangerous equipment regardless of height.
  - c. Fall hazards, by the erection of barriers placed at a distance at least six (6) feet away from the exposure.
  - d. Vehicular traffic by properly identified pedestrian areas.
  - e. Objects falling from elevated walking and working surfaces. (Toe guards on walking and working surfaces are required.)
  - f. Extreme environmental conditions such as dangerous or poisonous animals, excessive heat or cold.
  - g. Contact with Hazardous Substances or materials (e.g., Asbestos, lead, PCBs).
  - h. Being struck by moving or operating equipment.
  - i. Tripping and falling on stairways by appropriate handrails.
- 1.22.2. Employees shall not drop or throw materials or tools from elevated levels.
- 1.22.3. Employees shall not work below other employees unless the task requires employees to be below other employees; when this is required, the following shall be completed:
- a. Employees shall communicate the work plan, and
  - b. Communication methods to warn employees of falling objects shall be identified and implemented.

## **Pinch Points / Line of Fire / Crushing Zones**

- 1.22.4. Pinch points and crushing zones shall be identified and discussed in the daily Job Briefing.
- 1.22.5. The Person-In-Charge shall ensure employees are involved in identifying and controlling identified pinch points.
- 1.22.6. The Person-In-Charge shall ensure employees have training on pinch points, aka “stay out of the bite.” Pinch point hazards are present in all work activities; examples of pinch points include the following:
  - a. Devices which are sleeved; in which one component slides onto another component;
  - b. Devices that have stored potential energy (e.g., springs or self closing doors);
  - c. Devices that have stored gravitational energy (e.g., jacks, elevated items that can drop);
  - d. Pulleys and sheaves, with and without running lines;
  - e. Devices that contain pins to secure parts;
  - f. Hammering-type devices, jack hammers, sledge hammers;
  - g. Putting your body in between two objects;
  - h. Loading and unloading equipment, trailers; or
  - i. Devices with sliding components.

## *Concrete Operations*

- 1.23.1. Only Qualified and Authorized Persons shall perform concrete operations.
- 1.23.2. Exposed rebar that personnel could fall onto shall be protected by appropriate reinforced rebar caps.
- 1.23.3. Exposed rebar that is protruding horizontally that personnel could incur injury from shall have rebar caps installed.
- 1.23.4. Employees shall wear the appropriate PPE to ensure concrete does not contact the skin.

- 1.23.5. Employees placing concrete with a hose from a pumper shall wear a face shield in addition to appropriate PPE.
- 1.23.6. Employees shall not ride in concrete buckets.
- 1.23.7. Employees shall not work below concrete buckets while they are being elevated or lowered into position.
- 1.23.8. Employees applying concrete with pneumatic equipment (shotcrete) shall wear appropriate PPE
- 1.23.9. Employees shall never place their hands into a mixer while in operation.
- 1.23.10. When cleaning mixers, if you must place any part of the body into the mixer, LOTO rules shall be followed in Section 11.
- 1.23.11. Handles on floats or other equipment which may contact an Energized electrical component shall be constructed of nonconductive material.
- 1.23.12. Rebar shall only be bent with appropriate tools.
- 1.23.13. Concrete demolition utilizing pneumatic or hydraulic operated tools, such as jack hammers, shall require the following:
  - a. Appropriate PPE shall be donned;
  - b. Non-essential personnel shall be kept away from the work area; and
  - c. Employees clearing debris or working near the tool shall wear appropriate PPE.
- 1.23.14. Concrete demolition utilizing hydraulic powered attachments shall require the following:
  - a. Operators shall ensure all other employees are at a safe distance;
  - b. Operators shall stop operations if employees are too close to the work task; and
  - c. Personnel are only permitted to enter the work area when equipment operations has ceased.

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# Section 2      Personal Protective Equipment

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## 2.1.      *General Rules*

- 2.1.1. PPE shall be selected and approved by the Company.
- 2.1.2. Employees shall be trained in the proper selection, use, donning, removing and disposing of PPE.
- 2.1.3. Employees shall don and wear PPE designated and approved by the Company.
- 2.1.4. Management and Safety shall ensure that a hazard assessment is performed to determine the appropriate PPE is selected.
- 2.1.5. PPE shall be inspected prior to each use.
- 2.1.6. PPE shall not be altered or modified without management approval.
- 2.1.7. PPE shall be replaced when required.
- 2.1.8. PPE shall be stored appropriately when not in use.
- 2.1.9. PPE shall be available in multiple sizes or styles for proper fit.
- 2.1.10. Minimum PPE requirement for field work locations is ANSI-rated safety glasses and ANSI rated hard hats.
- 2.1.11. Minimum PPE requirements for shop employees are ANSI-rated safety glasses.
  - a. Shop employees working in locations outside of a shop shall wear ANSI-rated hard hats and ANSI-rated safety glasses.
- 2.1.12. Personal conductive objects (e.g., jewelry, keys, coins) worn on the body shall be removed prior to work on or near Energized conductors or equipment.
- 2.1.13. Sharp or pointed tools and materials shall not be carried inside clothing unless the point or cutting edge is guarded.
- 2.1.14. Employees shall ensure loose clothing, PPE, hair, jewelry, tools and other personal items are secured prior to approaching or working adjacent to rotating parts or equipment.

## 2.2. *Protective Apparel (Clothing)*

- 2.2.1. Properly rated FR (Flame Resistant) apparel shall be properly donned by employees who may be exposed to electrical arc or flash.
- 2.2.2. FR garments shall be the outermost garment.
- 2.2.3. FR garments shall have the appropriate rating for the anticipated exposure.
- 2.2.4. Undergarments shall be made of non-melting material.
- 2.2.5. Protective apparel that has oil, grease, fuel or combustible fluid stains or saturation shall not be worn or used while welding, torch cutting, or when working on or near Energized conductors or equipment. Protective apparel that is torn, ripped, cut or otherwise damaged shall be removed from service.
- 2.2.6. Clothing that becomes contaminated shall be removed as quickly as possible and in locations away from the potential hazards. Contaminated clothing shall be removed from service until properly cleaned.
- 2.2.7. Reflective vests shall be worn when required by the Customer, federal or state requirements, or when the employee is within fifteen (15) feet of a right-of-way.

## 2.3. *Head Protection*

- 2.3.1. Hard hats shall have an E or G electrical rating.
- 2.3.2. Hard hats shall be replaced when they are worn, cracked or subjected to damage.
- 2.3.3. Ball caps are not permitted under the hard hat. Skull caps and tight-fitting insulated caps are acceptable under the hard hat.
- 2.3.4. Chin straps shall be used during periods of high wind.

## 2.4. *Eye and Face Protection*

- 2.4.1. Employees shall wear company-approved eye and face protection equipment.

*Note: The company requires one hundred percent (100%) use of safety glasses within designated areas and work sites.*

- 2.4.2. Eye protection shall be ANSI Z87.1 rated. Side shields, prescription glasses, over the glass equipment, goggles and temporary “slip over” side shields shall meet ANSI Z87.1.
- 2.4.3. Goggles shall be worn when additional eye protection has been deemed necessary for a given task and at all times when:
  - a. Using compressed air to clean materials or machinery;
  - b. Transferring or using chemicals, caustics, acids, etc., (face protection may be required);
  - c. Any other hazard that may potentially injure the eyes; or
  - d. When required by Safety Data Sheet, or the Person-In-Charge.
- 2.4.4. Face protection (face shield, arc-rated shield, etc.) also requires the use of eye protection (safety glasses or goggles) under the shield. Work operations that require a face shield in addition to eye protection are:
  - a. Grinding;
  - b. Powered buffing, polishing or brushing;
  - c. Jack-hammering, chipping stone/masonry;
  - d. Powder-actuated tools when fastening into concrete or masonry;
  - e. Exothermic welding (CadWeld);
  - f. Opening an electrical cabinet or cutout, or switching tasks in which electrical arc flash may occur;
  - g. Transferring liquids when splash protection is required; or
  - h. Using chop saws and demolition saws.

## 2.5. *Hearing Protection*

- 2.5.1. Employees exposed to sound levels equal or exceeding 85 dBA on an eight-hour time-weighted average (TWA) shall be included in the hearing conservation program. Noise exposure shall be determined by noise dosimetry testing.
- 2.5.2. Hearing protection shall be worn when identified by the hazard assessment or daily Job Briefing.
- 2.5.3. Hearing protectors may be the ear canal type or the over the ear (muff) type.

## 2.6. *Respiratory Protection*

- 2.6.1. The Person-In-Charge shall contact the Safety Department prior to issuing a respirator.
- 2.6.2. When respirators are required, employees shall:
  - a. Be trained in compliance with the written respiratory protection program including the anticipated hazards, limitations of respirators and proper use of respirators;
  - b. Have completed the required medical evaluations;
  - c. Have received a medical clearance from a licensed healthcare professional; and
  - d. Have completed qualitative or quantitative fit testing to ensure proper fit of a respirator.
- 2.6.3. Voluntary use of filtering face pieces is permitted when used for nuisance dust purposes. Employees who are issued filtering face pieces for voluntary use shall be trained and receive a copy of OSHA 29 CFR 1910.134 Appendix D.

## 2.7. *Hand Protection*

- 2.7.1. Employees shall wear appropriate work gloves for all work tasks.
- 2.7.2. Prior to issuing specialty work gloves, skin sensitization shall be considered as part of the hazard assessment.
- 2.7.3. Cut-resistant gloves are recommended when handling knives, sheet metal and other sharp-edged tools or materials.

## 2.8. *Foot Protection*

- 2.8.1. Approved footwear is required in shops, warehouses, field locations, work sites, tool rooms, and any other location where falling, dropping, crushing, or rolling objects may injure the foot.
- 2.8.2. The Person-In-Charge shall ensure that the appropriate type of foot protection required for the specific site conditions and hazards are in use.
- 2.8.3. Metatarsal foot protection is required when using jack hammers, tampers and other hand-operated compacting type equipment that constitute a hazard to the feet.

- 2.8.4. Tennis shoes, sandals, or worn-out shoes are not permitted in shops, tool rooms, field locations or work sites.

## 2.9. *Fall Protection*

- 2.9.1. Management shall develop, maintain and implement a written fall protection / safety-at-heights program identifying appropriate fall protection.
- 2.9.2. Only Qualified and Authorized Persons shall don, use, and connect fall protection equipment.
- 2.9.3. Employees working at levels greater than six (6) feet above a lower level shall be protected from falling. (Local area regulations may be more stringent.)
- 2.9.4. Employees climbing structures, towers or power poles shall be protected from falling by implementation of ET&D Partnership Best Practices.
- 2.9.5. Employees may be protected from falls by any of the following methods:
  - a. An engineered system consisting of top rails, mid rails and toe boards;
  - b. A personal fall-arrest system (PFAS); or
  - c. A fall-restraint system.
- 2.9.6. Fall protection equipment shall be inspected by each user prior to each use.
- 2.9.7. Damaged, defective, deployed or arrested equipment shall be tagged “Out of Service” and removed from service.
- 2.9.8. Fall protection equipment shall be manufactured in compliance with ANSI Z359 and have the appropriate labeling affixed.
- 2.9.9. Equipment without legible labels or inspection tags shall be removed from service.
- 2.9.10. Equipment shall be inspected by a Competent Person at least annually.

## 2.10. *Work Positioning Equipment (Climbing / Positioning Gear)*

- 2.10.1. Management shall ensure that climbing and positioning equipment is approved for the use and shall be in compliance with ANSI Z359.

- 2.10.2. Only Qualified and Authorized Persons shall don, use, and connect work-positioning equipment in accordance with the ET&D Partnership Best Practices.
- 2.10.3. Prior to climbing the employee shall ensure that the climbing and positioning equipment is inspected, adjusted and securely connected.
- 2.10.4. Employees transitioning around obstructions on structures shall ensure that the secondary belt is positively secured prior to releasing any in-use connections.
  - a. Prior to disengaging any part of the climbing / positioning equipment, visually verify positive engagement of the snap-hook to the D-ring.
- 2.10.5. Climbing and positioning equipment shall be stored where it cannot be damaged.
- 2.10.6. Belt bags shall not be attached closer than four inches to D-rings.
- 2.10.7. Utility pole climbing gaffs shall be kept properly sharpened and at least one and one quarter inch (1¼”) in length.
- 2.10.8. Utility pole climbing gaffs shall not be used for climbing or working in trees.
- 2.10.9. Gaff guards shall be in place when not in use.

# Section 3 Electrical Protective Equipment

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## 3.1. General

- 3.1.1. RULES CONTAINED IN THIS SECTION ARE THE MINIMUM; LOCAL AREA RULES MAY BE MORE STRINGENT.
- 3.1.2. Electrical protective equipment shall be approved and provided by the Company.
- 3.1.3. Only Qualified and Authorized Persons may inspect, install, operate, remove, clean or maintain Insulating Protective Equipment.
- 3.1.4. Electrical protective equipment shall be inspected and/or tested prior to use. The equipment shall be re-inspected and/or retested following any Incident that may have damaged it.
- 3.1.5. When using the Rubber Glove Method, rubber insulating protective gloves and sleeves shall be donned in accordance with the ET&D Partnership Best Practices.
- 3.1.6. Electrical protective equipment shall be:
  - a. Free of damage;
  - b. Stored properly;
  - c. Selected based upon the anticipated phase-to-phase voltage exposure; and
  - d. Maintained free of petroleum-based contaminants, chemicals, acids, chlorinated solvents and other chemicals.
- 3.1.7. Flat or long flexible rubber materials (e.g. blankets and line hose) shall never be kinked or folded during storage.
- 3.1.8. Damaged or contaminated equipment shall be tagged Out Of Service and removed from service until properly cleaned, repaired, inspected and tested.
- 3.1.9. Rubber insulating protective gloves shall be stored in bags with the fingers up to prevent debris from entering the glove.

### 3.2. *Selection and Identification of Rubber Insulating Goods*

- 3.2.1. Rubber insulating protective equipment shall be selected based upon the phase-to-phase voltage.
- 3.2.2. Rubber insulating protective gloves and sleeves shall be marked legibly with the size, class and test date.
- 3.2.3. Equipment manufactured to ASTM Classes (specifications) shall be rated according to the below table:

**Table 3.2 Rubber Goods Classification**

Glove Class (Colored Label)	AC Proof Test Voltage	DC Proof Test Voltage	Maximum Use AC Voltage
Beige (00)	1000	5000	600
Red (0)	5000	20000	1000
White (1)	10000	40000	7500
Yellow (2)	20000	50000	17000
Green (3)	30000	60000	26500
Orange (4)	40000	70000	36000

- 3.2.4. Rubber insulating blankets shall be marked legibly with the class and test date.
- 3.2.5. Hard cover made of fiberglass, plastic or other non-conductive materials shall be selected based on the anticipated phase-to-phase voltage.

### 3.3. *Rubber Insulating Gloves and Sleeves*

- 3.3.1. Rubber insulating protective gloves and sleeves shall be donned in accordance with the ET&D Partnership Best Practices and:
  - a. Visually inspected prior to each day's use and when damage is suspected;
  - b. Visibly marked with the test date and issue date; and
  - c. Air-tested prior to each day's use.
- 3.3.2. Class 1 to Class 4 rubber insulating protective gloves shall not be used on any Energized electrical component without leather protectors.

- 3.3.3. Rubber insulating protective gloves and sleeves shall be donned and remain on the employee's arms at all times when the employee is within the M.A.D. If parts or equipment are Insulated or Isolated, gloves and sleeves shall not be removed while the employee is within the M.A.D.

### 3.4. *Insulating Protective Equipment (IPE) (Blankets, Line Hose, and Cover)*

- 3.4.1. Installation of IPE as secondary protection does not alter established M.A.D.
- 3.4.2. IPE shall be inspected by a Qualified Person prior to installation.
- 3.4.3. IPE shall be installed to adequately cover Exposed Energized parts. (e.g., M.A.D. plus extended reach).
- 3.4.4. IPE shall be fastened securely when installed. Fasteners shall be of sufficient durability to prevent displacement.
- 3.4.5. Determination of the size, type and quantity of IPE shall be determined by the Qualified Person and in accordance with the ET&D Partnership Best Practices.
- 3.4.6. Installation of IPE shall start at the lowest or nearest exposure and proceed upward or away to the next closest exposure.
- 3.4.7. Employees shall not cross unprotected conductors to install or remove IPE.
- 3.4.8. Removal of IPE shall be from the highest (or farthest) location to the lowest (or nearest) location (reverse order of installation).
- 3.4.9. IPE shall only be installed or removed in one of the following manners:
  - a. Employees wearing rubber insulating protective gloves and sleeves; or
  - b. Employees who, by using hot sticks, do not enter the M.A.D.

### 3.5. *Testing*

- 3.5.1. Rubber insulating protective equipment shall be tested at regular intervals; the following are the minimum guidelines. **Local area rules may have more stringent requirements.**

- 3.5.2. Rubber insulating protective gloves:
  - a. Visually inspected and air-tested prior to each use.
  - b. Voltage tested every six (6) months.
- 3.5.3. Rubber insulating protective sleeves:
  - a. Visually inspected prior to each use.
  - b. Voltage tested annually.
- 3.5.4. Rubber insulating blankets:
  - a. Visually inspected prior to each use.
  - b. Voltage tested annually.
- 3.5.5. Insulating line hose:
  - a. Visually inspected prior to each use.
- 3.5.6. Insulated Live Line tools (hot sticks):
  - a. Visually inspected prior to each use.
  - b. Voltage tested bi-annually (every two years).

### 3.6. *Removal from Service*

- 3.6.1. Gloves, sleeves and blankets shall be removed from service:
  - a. When the glove fails an air test;
  - b. When dirt or stains on gloves, sleeves or blankets cannot be removed;
  - c. When gloves or sleeves have tears, cuts or deep scratches in the material;
  - d. When the gloves, sleeves or blankets have damage from petroleum residue;
  - e. When a component has different colored materials on the inside and the outside, and the interior color is visible on the outside;
  - f. When an employee determines that the equipment is unsafe for use; or
  - g. When the equipment has exceeded the testing date interval.

### 3.7. *Storage*

- 3.7.1. Gloves, sleeves and blankets that have passed a voltage test may be stored in a temperature-controlled environment for up to one (1) year prior to issue.
- 3.7.2. Gloves, sleeves and blankets in storage for more than one (1) year shall be tested prior to issue.

Note: These rules are minimum requirements; local rules may be more stringent.

### 3.8. *Insulated Hand Tools*

- 3.8.1. Insulated hand tools shall:
  - a. Be selected and properly rated based upon the anticipated voltage;
  - b. Be inspected and wiped down prior to each use;
  - c. Be free of grease, moisture, dirt, oily residues, other contaminants or damage that makes the tool unfit for use;
  - d. Only be used for the intended purpose;
  - e. Only be used with properly rated rubber insulating protective gloves and outer protectors; and
  - f. Be stored in protective cases and placed in areas free from contamination during use.

### 3.9. *Live Line Tools (Hot Sticks)*

- 3.9.1. Live line tools shall:
  - a. Be selected based upon the Working Load Limit (WLL) and the phase-to-phase voltage;
  - b. Be inspected and wiped down prior to each use;
  - c. Be free of grease, moisture, dirt, oily residues, other contaminants, physical damage or delamination on the outer surface;
  - d. Be removed from service at two-year intervals for inspections, cleaning, waxing and re-tested;
  - e. Not be placed on the ground or other surface where they may be exposed to contamination;
  - f. Be stored in approved locations; and
  - g. Be tested prior to issue.

- 3.9.2. If the tool has been repaired or refinished, the tool shall be tested prior to re-issue.
- 3.9.3. Additional precautions shall be taken when live-line tools are utilized in inclement weather.

# Section 4 Tools

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## 4.1. *General*

- 4.1.1. Powered tools shall only be operated, repaired or maintained by Qualified and Authorized Persons.
- 4.1.2. Tools shall be kept in good condition, inspected and maintained.
- 4.1.3. Tool guards shall be inspected prior to use.
- 4.1.4. Broken, damaged or faulty tools shall be tagged Out Of Service and removed from service until repaired, inspected and tested.
- 4.1.5. Portable powered tools (air, electric, hydraulic and fuel) shall have a constant pressure switch that turns the tool off when released.
- 4.1.6. Tool implements (drill bits, dies, saw blades, etc.) shall only be changed or replaced while the tool is disconnected from the power source.
- 4.1.7. Implements shall be properly rated for the speed and type of material.
- 4.1.8. Guards shall be installed while the tool is in use.
- 4.1.9. Tools shall not be issued or supplied in a defective condition.
- 4.1.10. Hoses or electric cords shall not be used to raise or lower tools.
- 4.1.11. Tools shall be stored in designated locations and per manufacturer guidelines.
- 4.1.12. Tools shall only be used for their intended purpose (e.g., using a screw driver as a chisel, using your hand as a hammer is not the intended purpose).
- 4.1.13. Non-sparking tools shall be provided in areas where flammable atmospheres are present.
- 4.1.14. Employees shall don all required PPE as identified by the manufacturer or the company prior to tool operation.

## 4.2. *Personal Tools*

- 4.2.1. Personal tools shall be inspected prior to use and maintained per the manufacturer's specification.

- 4.2.2. Defective personal tools shall be tagged Out Of Service and removed from service.

### 4.3. *Fuel (Gas, Diesel) Powered Tools*

- 4.3.1. Fuel-powered tools shall be used in well-ventilated areas.
- 4.3.2. Fuel-powered tools shall not be operated in basements, inside of buildings, Confined Spaces or Enclosed Spaces without exhausting outside the work area, and adequate ventilation inside the work area.
- 4.3.3. Employees shall have adequate ventilation while operating fuel powered tools.
- 4.3.4. Fuel-powered tools shall be shut off during refueling, servicing or maintenance.
- 4.3.5. Fuel-powered tools shall have fire extinguishing equipment readily available as identified by the Job Briefing.

### 4.4. *Powder Actuated Tools*

- 4.4.1. Only Qualified and Authorized Persons shall use powder-actuated tools.
- 4.4.2. Appropriate PPE shall be donned prior to operating powder-actuated tools.
- 4.4.3. Loaded tools shall not be left unattended and only loaded prior to use.
- 4.4.4. Cartridges, used or misfired shall be disposed of properly.
- 4.4.5. Shells, unused cartridges and power cartridges shall be stored properly in secured areas.
- 4.4.6. Powder-actuated tools shall not be pointed at anyone.
- 4.4.7. Powder-actuated tools shall be inspected prior to use and to ensure the tool is in proper operating condition.

### 4.5. *Electric Powered Tools*

- 4.5.1. Electric-powered tools shall not be used if there is damage to the electrical cord, sheathing, insulation, or strain relief.
- 4.5.2. Electric-powered tools shall be powered by round three-wire cords or be double insulated.
- 4.5.3. Electric-powered tools shall have the proper supply sources and overcurrent protection.

- 4.5.4. Electric-powered tools shall have all attachments firmly secured, seated or affixed.
- 4.5.5. Stand-based pipe threading machines shall have foot controls.

#### 4.6. *Chop, Demolition and Concrete Saws*

- 4.6.1. Operators shall inspect the machine and attachments prior to use.
- 4.6.2. Operators of chop saws and concrete saws shall wear appropriate PPE.
- 4.6.3. Operators of demolition saws shall wear appropriate hearing protection, face protection, eye protection and leg protection.
- 4.6.4. The RPM rating of the cutting disc or blade shall exceed the rated RPM of the saw.
- 4.6.5. Blade rotation shall match the rotation of the power unit.
- 4.6.6. The blade shall be properly installed and secured.
- 4.6.7. When cutting concrete or masonry, wet methods shall be implemented where feasible. Dry cutting shall require the use of adequate ventilation and appropriate respiratory protection.

#### 4.7. *Air Compressors and Pneumatic Tools*

- 4.7.1. Compressed air exceeding thirty (30) p.s.i. shall not be used to remove debris from employees or clothing.
- 4.7.2. Air tanks shall be drained daily of accumulated liquid.
- 4.7.3. Air pressure shall be cut off from tools prior to disconnection.
- 4.7.4. Cold climates require proper maintenance to prevent freeze-up.
- 4.7.5. Hoses shall not be exposed to burning, crushing, solvents or other harmful substances.
- 4.7.6. Hose couplings shall be secured with an approved pin or whip-check device.
- 4.7.7. Hoses shall be repaired using a compression crimp method. (Water hose clamps are not permitted).
- 4.7.8. Pressure-relief valves (safety valves) shall be checked periodically.

4.7.9. Rated operating pressures shall not be exceeded.

#### 4.8. *Hydraulic Powered Tools*

- 4.8.1. Only Qualified and Authorized Persons shall operate hydraulic powered tools.
- 4.8.2. Hydraulic-powered tools shall have approved fluids per the manufacturer's specifications.
- 4.8.3. Fluid levels shall be checked to ensure proper operation.
- 4.8.4. Manufacturer's recommended operating pressures shall not be exceeded.
- 4.8.5. Hydraulic-powered tools used on Energized equipment shall have non-conductive hoses.
- 4.8.6. Couplings shall be inspected to ensure they are seated and connected.
- 4.8.7. Couplings shall have covers (caps) installed when not in use to keep connections clean and free of contaminants or damage.
- 4.8.8. Hydraulic-powered tools shall be designated for the type of system to which they are designed.

#### 4.9. *Hand Tools*

- 4.9.1. Hand tools shall be used for the intended purpose.
- 4.9.2. Hand tools shall have proper handles for use.
- 4.9.3. Impact tools shall be kept free of mushroomed heads. (e.g., chisels, punches)
- 4.9.4. Cheaters or extensions shall not be used on hand tools unless the tool is designed for the purpose.
- 4.9.5. Conduit benders shall only be used for bending conduit.
- 4.9.6. Operators shall be aware of and avoid pinch points when using hand tools.

#### 4.10. *Chain Saws*

- 4.10.1. Only Qualified and Authorized Persons shall operate chain saws.
- 4.10.2. When employees are working from the pole, a Site Specific Task Plan shall be implemented and reviewed by Management and Safety.

- 4.10.3. Operators of chain saws shall wear appropriate PPE to include face protection and leg protection.
- 4.10.4. Leg protection is not required when working from the bucket.
- 4.10.5. Anti-kickback devices shall be in place and operational.
- 4.10.6. Employees shall maintain a safe distance from the operator and saw while the tool is in use.
- 4.10.7. Guards shall be maintained in place and operational during operation.

#### *4.11. Arc Welders Electric or Fuel Powered*

- 4.11.1. Only Qualified and Authorized Persons shall use electric arc welders.
- 4.11.2. Leads, stingers and connectors shall be properly maintained.
- 4.11.3. Cables connected to the rod holder end (stinger) shall be free of damage.
- 4.11.4. Welding operations shall have appropriate barriers to protect personnel from the arc.
- 4.11.5. Current carrying parts shall be properly insulated.
- 4.11.6. Grounding cables shall be properly attached as close as possible to the welding location.
- 4.11.7. When unattended, the electrode shall be removed from the holder (stinger).

#### *4.12. Fixed Machinery*

- 4.12.1. Fixed machinery shall only be operated by Qualified and Authorized Persons.
- 4.12.2. Machines not designed for continuous operation shall be shut off when unattended or when work is complete.
- 4.12.3. Exposed rotating parts of machinery shall be guarded.
- 4.12.4. Point-of-operation guarding shall be installed and operational.
- 4.12.5. Machinery shall be hard-wired; temporary wiring is not permitted.
- 4.12.6. Operators shall wear appropriate PPE for the machinery.

- 4.12.7. Implement (bits, blades, etc) replacements or machinery repairs shall require proper lockout/tagout procedures.

### 4.13. *Jacks and Jack Stands*

- 4.13.1. Jacks and jack stands shall not be loaded beyond their rated capacity.
- 4.13.2. Jacks shall be centered under the load and blocks or jack stands shall be placed under the load.
- 4.13.3. Jacks and jack stands shall be inspected prior to each use and when subjected to shock or impact.
- 4.13.4. Jacks and jack stands shall be supported when placed on uneven or soft ground.
- 4.13.5. Blocking or jack stands shall be installed when employees work under a load.
- 4.13.6. Jacks used in freezing weather shall have appropriate fluids.

### 4.14. *Grinders*

- 4.14.1. Face shields with safety glasses or goggles shall be donned when operating grinders.
- 4.14.2. Grinding discs shall be visually inspected prior to each use.
- 4.14.3. Guards shall be in place and operational.
- 4.14.4. Handles shall be in place and operational.
- 4.14.5. Grinding disks that have been dropped, acquired moisture or stored improperly shall not be used.
- 4.14.6. Manufacturer-supplied guards shall be in place and operational.
- 4.14.7. The RPM rating of the disc shall exceed the RPM of the grinder.
- 4.14.8. Employees shall not stand in front of a grinder when it is started.
- 4.14.9. Grinders shall not be used on soft materials (wood, copper, brass).
- 4.14.10. Personnel shall be kept away from the spark trail.
- 4.14.11. A ring test shall be performed after installation of a new wheel.

## **Bench Grinders**

- 4.14.12. Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth ( $\frac{1}{8}$ ) inch.
- 4.14.13. Tongue-guard openings shall be adjusted to one-quarter ( $\frac{1}{4}$ ) inch.
- 4.14.14. Spark guards shall be installed and maintained as specified by the manufacturer.
- 4.14.15. Shields shall be installed and maintained as secondary protection for the face and eyes.
- 4.14.16. Bench grinders shall be permanently affixed to a stable surface.

## *4.15. Hoists and Come-Alongs*

- 4.15.1. Hoists and come-alongs shall be legibly identified with the maximum capacity.
- 4.15.2. Cables, chains or straps of the hoist or come-along shall not be wrapped around a load. Proper rigging shall be used to secure the load.
- 4.15.3. Employees shall use hoists and come-alongs in accordance with the manufacturer's recommendations.
- 4.15.4. Hoists and come-alongs shall be inspected prior to use.
- 4.15.5. Hoists and come-alongs shall be attached to anchorages rated at or greater than the rating of the load or hoist.
- 4.15.6. Hoists with nylon straps designed for support of Energized conductors shall be Isolated from the structure.

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# Section 5 Motor Vehicles

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## 5.1. General

- 5.1.1. Operators shall perform a complete walk-around inspection of the vehicle prior to movement.
- 5.1.2. Drivers shall have a valid driver's license in the appropriate class, including applicable endorsements for the vehicle being operated. Company vehicles shall only be operated by Authorized Persons.
- 5.1.3. The operator is responsible for the proper safe operation, daily maintenance, and cleanliness of his or her vehicle.
- 5.1.4. Each operator shall ensure that all occupants of a passenger vehicle wear safety belts at all times prior to placing the vehicle in motion.
- 5.1.5. The operator shall not permit persons to ride, stand or sit on the running boards, fenders, truck beds, or any other location not designed for passenger occupancy. Seats or stations designed for equipment operation shall not be utilized as a passenger seat.
- 5.1.6. Operators shall not permit unauthorized persons to drive, operate or ride in or on a company vehicle.
- 5.1.7. Employees shall not jump on or off vehicles, truck beds or trailer beds at any time.
- 5.1.8. Employees accessing vehicles with designated access points shall employ three points of contact when accessing or exiting the vehicle.
- 5.1.9. Operators shall not text, read, write, edit emails, or documents on cell phones, or operate any other portable device while operating any motor vehicle. Such activities shall be performed after the vehicle is safely out of active traffic lanes and all vehicle motion has stopped (parked). (Inclusive of all construction equipment.)
  - a. Cell phone use shall be in accordance with federal, state, and local regulations.
- 5.1.10. Operators shall report any suspension or license restrictions for DUI (Driving Under the Influence), DWI (Driving While Impaired), or reckless driving to Management immediately.

- 5.1.11. Commercial vehicle operators shall immediately report any violation, citation, suspension, DUI (Driving Under the Influence), DWI (Driving While Impaired), reckless driving or license restriction as required by federal rules.
- 5.1.12. Hazardous spills or leaks shall be cleaned up and disposed of properly by Qualified and Authorized Persons and reported to Management and Safety.
- 5.1.13. Operators are responsible for loads transported on their vehicle and compliance with federal, state and local D.O.T. regulations.
- 5.1.14. Fuel tanks, parts bins, storage racks, and other attachments shall be properly secured to the vehicle and shall comply with motor vehicle regulations.
- 5.1.15. Motors or engines shall be shut off during refueling operations.
- 5.1.16. Adequate fire extinguishers shall be readily available on all commercial vehicles and as required by Management.
- 5.1.17. Plastic bed liners are prohibited.
- 5.1.18. Vehicles with a GVWR above 10,001 pounds shall have a functioning backup alarm.
- 5.1.19. Trailer decks, truck beds and personnel access locations on vehicles shall be kept clean.
- 5.1.20. Non-highway vehicles shall not be operated on public roadways unless an escort is provided or the vehicle is properly licensed or placarded.
- 5.1.21. Gross vehicle weight ratings (GVWR), Gross Combined Vehicle Weight ratings (GCVW), load ratings, and axle weight ratings shall not be exceeded.
- 5.1.22. Rollover Protection Systems (ROPS), if installed on vehicles, shall not be altered.
- 5.1.23. Equipment without a ROPS or overhead canopy does not require seatbelts.
- 5.1.24. Disabled vehicles shall be protected by appropriate flagging or triangles.
- 5.1.25. Wheel chocks shall be installed on all vehicles and trailers when parked unless:
  - a. Equipped with positive spring-type parking brake that is engaged;

- b. An automatic transmission placed in park; or
  - c. Construction equipment with parking brake engaged.
- 5.1.26. When wheel chocks are required on parked vehicles, they shall be installed on the front and back of one drive wheel.
- 5.1.27. When wheel chocks are required on disconnected and parked trailers, they shall be installed on the front and back of one wheel.
- 5.1.28. Always use a spotter when backing the equipment. Use spotters front and rear when positioning equipment in confined or congested areas.
- a. When additional personnel are not present, the driver shall verify the clearances prior to movement.
- 5.1.29. Operators shall check the height of the vehicle and the clearance from any overhead obstacles prior to traveling under the obstacle.
- 5.1.30. Operators shall ensure operator and safety manuals are maintained on the equipment.
- 5.1.31. Vehicles with outriggers, stabilizers or leveling jacks shall be operated with all devices extended and set per manufacturer specifications.
- 5.1.32. Operators shall ensure all personnel are clear of the stabilizer, outrigger or jack during raising and lowering, including the initial contact with the pad or ground surface.
- 5.1.33. Outriggers, stabilizers or leveling jacks shall have pads to provide solid and secure footing.

## 5.2. *Operation and Inspection*

- 5.2.1. Operators shall comply with federal, state and local motor vehicle rules of the road.
- 5.2.2. Operators shall operate their vehicle in a safe manner and always employ defensive driving principles.
- 5.2.3. Operators of commercial vehicles shall perform and complete pre-trip inspections of vehicles prior to use and in compliance with federal, state and local regulations.
- 5.2.4. Operators shall perform walk-around inspections of the vehicle prior to movement.
- 5.2.5. Operators shall complete all required paperwork to comply with D.O.T., federal, state, local, Customer and company regulations.

## **Department of Transportation (DOT)**

- 5.2.6. A Commercial Drivers License (CDL) is required for the following vehicles;
  - a. Vehicles with a GVWR exceeding twenty-six thousand (26,000) pounds;
  - b. Vehicles in combination with a GCVW exceeding twenty-six thousand (26,000) pounds;
  - c. Vehicles in combination with a GCVW exceeding twenty-six thousand (26,000) pounds, and a trailer exceeding ten thousand (10,000) pounds GVWR require a Class A CDL;
  - d. Any vehicle designed to transport hazardous materials;
  - e. Any vehicle capable of hauling more than one-hundred nineteen (119) gallons of any liquid.
- 5.2.7. Business units shall maintain accurate and up-to-date driver files for each operator who may operate a vehicle exceeding ten thousand (10,000) pounds.
- 5.2.8. Business units shall maintain all required records of commercial vehicle operation in accordance with D.O.T. regulations.
- 5.2.9. Fleet department shall ensure annual vehicle inspections are current.

## **Licensing**

- 5.2.10. CDL licensed drivers shall maintain a current DOT medical card.
- 5.2.11. Non-CDL operators may drive vehicles exceeding ten thousand (10,000) pounds but not more than twenty-six thousand (26,000) pounds. Operators of these vehicles shall maintain a current DOT medical card and a valid road test in the driver file while operating a vehicle between 10,000 and 26,000 pounds.

## **5.3. Load Transport / Load Securement**

- 5.3.1. Load binders shall be secured and checked before transport.
- 5.3.2. Load binders shall be of the ratchet type.
- 5.3.3. Chains used to secure loads shall be rated for transport.
- 5.3.4. Loads shall be properly secured and in compliance with federal, state and local regulations.

- 5.3.5. Tools, materials, equipment on flat or open-bed trucks or trailers shall be properly secured.
- 5.3.6. Loads shall be secured to prevent movement in any direction.
- 5.3.7. Loads shall be positioned so that they do not restrict vehicle movement.
- 5.3.8. Loads shall be positioned so that they distribute weight evenly over the axles of the trailer and/or truck.
- 5.3.9. Loads on vehicles or trailers require a minimum of two tie-downs:
  - a. Loads greater than eleven hundred pounds (1,100 lbs.) regardless of length;
  - b. Loads longer than five (5) feet in length but less than ten (10) feet in length; and
  - c. Loads longer than ten (10) feet in length require two (2) tie-downs within the forward ten (10) feet of the load and one additional tie-down for each ten (10) feet of length or fraction thereof beyond the first ten (10) feet.
- 5.3.10. Cargo within containers or large tool boxes shall be secured.
- 5.3.11. Inspect the load, straps, ratchets and binders after the first fifty (50) miles or thirty (30) minutes of travel and adjust as necessary.
- 5.3.12. Loads shall be inspected when the vehicle has been driven for three (3) hours, driven more than one-hundred fifty (150) miles or the driver makes a change-of-duty status; whichever occurs first.
- 5.3.13. Tie-down Working Load Limits (WLL) shall not be exceeded.
- 5.3.14. Loose debris shall be removed from vehicles, trailers or loads prior to transport.
- 5.3.15. Flagging is required when the vehicle or load exceeds the maximum vehicle dimensions specified by federal, state or local regulations.

### **Wire Reels, Reel Stands and Round Objects**

- 5.3.16. Reel stands shall be secured to the vehicle to prevent movement while in transport.
- 5.3.17. Wire reels placed in reel stands shall be secured.

- 5.3.18. Wire reels placed in reel stands shall have an additional tie-down to secure the reel to the trailer when transported, placed from the front to the rear of the trailer on each side of the spindle.
- 5.3.19. Reels not placed in reel stands shall be securely chocked and tied down to the bed of the vehicle.
- 5.3.20. Spindles shall be secured to the stand or the vehicle bed.

### **Power Poles**

- 5.3.21. Vehicles used for pole transport shall be designed for the purpose.
- 5.3.22. Poles shall be secured by at least one tie-down for each ten (10) feet of length or fraction thereof, except pole handling trailers.
- 5.3.23. Tractors and trailers used to transport poles shall have a header board or cab protection. These vehicles require a second tie-down to be installed within ten (10) feet of the forward end of the load.
- 5.3.24. Poles shall be solidly packed, and the outer bottom poles shall have solid contact with the stakes or standards.
- 5.3.25. Poles shall not be loaded above the top of the stake or standard.
- 5.3.26. Poles shall be secured as a bundle in addition to being secured to the trailer.
- 5.3.27. Large diameter poles and stacked pole loads shall be chocked to prevent lateral movement.
- 5.3.28. Poles that are not held in place by other poles, stakes or standards shall be secured by tie-downs.
- 5.3.29. Large diameter poles that rise above bunks shall be secured to the underlying load with at least two additional tie-downs.

### *5.4. Aerial Equipment*

- 5.4.1. Only Qualified and Authorized Persons shall operate aerial equipment.
- 5.4.2. Aerial equipment shall be inspected prior to operation; lift controls shall be tested daily prior to use.
- 5.4.3. Lower controls and emergency-descent devices shall be checked for proper operation prior to use each day. Aerial

lifts shall be positioned such that lower controls are accessible to rescue personnel.

- 5.4.4. Load limits of the platform capacity shall be posted and not exceeded.
- 5.4.5. Equipment operated by non-Electrically Qualified Persons shall maintain a minimum clearance of ten (10) feet from Energized parts rated at fifty (50) kV phase-to-phase or less; the minimum clearance for conductors rated over fifty (50) kV phase-to-phase shall be ten (10) feet + four (4) inches for each ten (10) kV over fifty (50) kV.
- 5.4.6. Annual dielectric tests are required for any equipment approved for use on Energized electrical systems and shall comply with ANSI A92.2. (Local area rules may be more stringent.)
- 5.4.7. Prior to elevation of the bucket or basket, all required inspections and operational checks shall be completed.
- 5.4.8. Materials, tools or equipment shall not be placed in a position where the items can potentially engage the controls.
- 5.4.9. Employees shall always stand firmly on the floor of the basket except when entering or exiting the basket. Employees shall not sit or climb on the rails or edge of the basket.
- 5.4.10. Side loading shall not be placed on an aerial device.
- 5.4.11. Climbers shall not be worn by employees in buckets or baskets.
- 5.4.12. Ladders, planks or other height-increasing objects shall not be used in baskets or buckets to gain additional elevation.
- 5.4.13. Employees in the basket shall utilize proper Personal Fall-Arrest Systems (PFAS) and securely connect to the approved anchorage locations or boom straps attached to the boom.
- 5.4.14. Employees shall not belt-off or tie-off to an adjacent structure or equipment while working from an aerial lift.
- 5.4.15. Employees transferring out of an elevated aerial lift shall use the proper fall protection to ensure one hundred percent (100%) fall protection. This activity is only permitted with a Site-Specific Task Plan approved by the Safety Department and Management.

- 5.4.16. When booms are positioned over active vehicle lanes, a spotter shall ensure the vehicle remains clear of the traffic lane. Booms shall be kept a minimum of sixteen (16) feet above the roadway elevation.

### **Bucket Trucks / Insulated Aerial Equipment**

- 5.4.17. Fall protection equipment (PFAS) shall be donned and connected any time the bucket is out of the cradle position.
- 5.4.18. Riding in the bucket while the truck is traveling is not permitted.

Exception: Employees may ride in the bucket at the work location for short moves if the bucket is returned and secured in the cradle position for each move, fall protection equipment is used, and a Site-Specific Task Plan is approved by Management.

- 5.4.19. Lower or ground controls shall be plainly marked as to their function and shall not be operated unless the employee in the bucket has approved the use or in case of emergency.
- 5.4.20. Buckets shall have an approved bucket liner.
- 5.4.21. Booms shall be kept clean.
- 5.4.22. Holes shall not be drilled in the bucket or the bucket liner.
- 5.4.23. Hydraulic tool hoses shall be routed where they do not become entangled with the controls.
- 5.4.24. Outriggers shall be deployed per manufacturer specifications.
- 5.4.25. Employees on the ground shall be Insulated prior to contacting any part of the bucket truck or Insulated aerial equipment when the boom is positioned within the M.A.D. of Energized parts.

### **Material Handling Booms**

- 5.4.26. Material handlers shall not be loaded beyond their rated capacity.
- 5.4.27. Material handlers shall be positioned so they are not side loaded.
- 5.4.28. All loads attached to the material handler shall be properly rigged so that the load cannot spin or move and contact the aerial boom.

## **Articulating Boom Lifts**

- 5.4.29. Employees shall be knowledgeable of the aerial limitations of the equipment.
- 5.4.30. PFAS shall be donned and connected immediately upon entering the basket.
- 5.4.31. Equipment with extendable axles shall be deployed when required.
- 5.4.32. Gates and safety chains shall be secured prior to operating the lift.
- 5.4.33. Lifts shall be operated on surfaces which can support the machine. Operators shall maintain appropriate distances from holes, barricades and floor coverings.

## **Scissor Lifts**

- 5.4.34. Employees shall be knowledgeable of the aerial limitations of the equipment.
- 5.4.35. Gates and safety chains shall be secured prior to operation.
- 5.4.36. Lifts shall be operated on surfaces that can support the machine. Operators shall maintain appropriate distances from holes, barricades and floor coverings.
- 5.4.37. Do not elevate the lift on inclined surfaces.
- 5.4.38. PFAS are required when:
  - a. The employee's feet leave the platform floor; or
  - b. The employee is accessing a location outside of the platform.

## **5.5. *Forklifts / Powered Industrial Trucks***

- 5.5.1. Only Qualified and Authorized operators shall operate forklifts.
- 5.5.2. Operators shall:
  - a. Inspect the machine prior to the beginning of each shift the machine is used;
  - b. Don the seat belt prior to operation;
  - c. Always be aware of their surroundings, including visibility, personnel walkways, blind corners, other vehicles, machinery, overhead obstacles, hazardous / classified areas, and uneven ground;

- d. Descend and ascend ramps slowly and properly;
  - e. Place the forks on the ground when the machine is stopped or parked;
  - f. Never leave the machine running while unattended;
  - g. Never exceed the capacities of the equipment;
  - h. Use manufacturer-approved attachments;
  - i. Ensure all rigging is attached to a rigging attachment;
  - j. Travel at safe speeds so that loads are not displaced;
  - k. Ensure refueling / battery charging is performed in authorized locations;
  - l. Wear appropriate PPE when refueling / changing batteries;
  - m. Remove from service and affix an Out Of Service tag to any machine that is not operating properly;
  - n. Ensure loads are stable and secure on the forks; and
  - o. Secure unstable loads to the mast.
- 5.5.3. When not in use, forklifts shall be parked on as level ground as possible with the parking brake set.
- 5.5.4. Operators shall be trained prior to operating a forklift.
- 5.5.5. Operators shall be retrained every three (3) years or when the operator is involved in an Incident or demonstrates a need for retraining.

## 5.6. *ATV, UTV and Golf Cart*

- 5.6.1. ATV, UTV and golf carts shall be operated at safe speeds that will not endanger the operator or any passengers.
- 5.6.2. ATV, UTV and golf carts shall only be used for their designated purpose; stunt driving and horseplay shall not be permitted.
- 5.6.3. Fuel-powered vehicles shall only be refueled while the engine is off and in authorized locations.
- 5.6.4. Inspect the machine prior to the beginning of each shift the machine is used.
- 5.6.5. Passengers shall be seated in approved seating locations. If seat belts are provided, they shall be used at all times when the vehicle is in motion.

- 5.6.6. Operators shall not permit unauthorized persons to drive or operate the vehicle.
- 5.6.7. ATV, UTV and golf carts without rollover protection shall require employees to don DOT-approved head protection.
- 5.6.8. Three-wheel ATV vehicles are prohibited.

## 5.7. *Earth-Moving Equipment*

This section includes rules for equipment such as dozers, excavators, backhoes, loaders, compactors and skid steer equipment.

- 5.7.1. Only Qualified and Authorized persons shall operate earth-moving equipment.
- 5.7.2. Operators shall inspect the equipment prior to the beginning of each shift the machine is used.
- 5.7.3. The limitations of the equipment shall not be exceeded.
- 5.7.4. Seatbelts shall be worn at all times while traveling.
- 5.7.5. Employees shall not work under an elevated bucket, boom or earth-moving attachment unless the attachment has been properly secured.
- 5.7.6. Operators shall ensure other persons are clear of the machine's operating radius, travel path and stabilizer or outrigger travel path.
- 5.7.7. Operators shall position equipment where it will not cause a cave-in or soil displacement to excavations or undisturbed soils.
- 5.7.8. Equipment shall not be used as hoisting equipment unless designed for the purpose.

## 5.8. *Digger Derricks*

- 5.8.1. Employees shall maintain a safe distance when cradling and uncradling the auger.
- 5.8.2. The strap to cradle and uncradle the auger shall be inspected prior to stowing the auger.
- 5.8.3. Employees replacing auger bits or changing auger bits shall be trained on pinch points.
- 5.8.4. Employees shall maintain a safe distance from the auger during operation.

- 5.8.5. Prior to stowing the auger, ensure it is clean and free of debris.

## 5.9. *Cranes*

- 5.9.1. Only Qualified and Authorized persons shall operate cranes.

NOTE: Regulations require Crane Operator certification by November 14, 2014.

- 5.9.2. Jibs and pin-on man baskets shall be approved by the manufacturer.
- 5.9.3. Employees shall not ride the hook, ball, sling or load.
- 5.9.4. When the load has the potential to swing or spin, the load shall have at least one tag line.
- 5.9.5. The operator shall never leave a suspended load unattended.
- 5.9.6. Employees shall only work under suspended loads when a Site-Specific Task Plan has been approved by Management and Safety.
- 5.9.7. Warning labels for outriggers, electrical clearances, M.A.D. distance charts and manufacturer-required labels shall be installed where required and visible to the operator.
- 5.9.8. Operators shall verify and ensure:
  - a. Daily inspections are completed prior to use;
  - b. Appropriate load charts are provided and available for each configuration;
  - c. Load chart ratings are not exceeded.
  - d. Functional tests are performed;
  - e. The crane has a current annual inspection;
  - f. Loads do not exceed the capacity of the crane;
  - g. The crane maintains a safe distance from power lines;
  - h. The super structure swing radius is properly barricaded;
  - i. Every crew member understands and can identify the stop signal;
  - j. One certified signal person has been identified for the lift;
  - k. Outrigger pads are placed under each outrigger;

- i. All factors reducing capacity have been evaluated.

**CAUTION:**

Load Moment Indicators (LMI) are operational aids, never use the LMI in place of a load chart. Always refer to the load chart prior to each lift to ensure the load is within the capacity of the crane.

- 5.9.9. The Person-In-Charge shall ensure that only certified signal persons are providing appropriate hand signals identified in Table 5.10.
- 5.9.10. The Person-In-Charge shall ensure one Qualified rigger is stationed at each location where loads are connected.
- 5.9.11. Crane operations performed by Electrically Qualified Persons shall not encroach closer than the M.A.D. (Reference Section 1.8). If work tasks require encroachment, appropriate Insulating, Isolating or Deenergizing techniques shall be implemented.
  - a. Non-Electrically Qualified crane operators can encroach closer than the twenty (20) feet requirement only when supervised by Electrically Qualified Person(s).
- 5.9.12. Crane operations performed by Non-Electrically Qualified Persons that are closer than twenty (20) feet to the power line shall require a Site-Specific Task Plan and:
  - a. The work is not feasible to complete without breaching the distances identified in Table 5.9;
  - b. The Customer states that the line cannot be Deenergized and Grounded;
  - c. Spotters shall be provided if any part of the crane may encroach closer than twenty (20) feet; and
  - d. The distances specified shall not be encroached.

**Table 5.9 Minimum Clearance Distances**

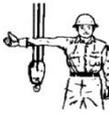
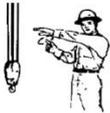
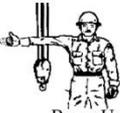
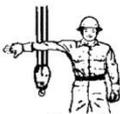
Nominal AC Voltage	Minimum Clearance Distance (Feet)
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Up to 50 kV	10
Over 50 kV to 200 kV	15
Over 200 kV to 350 kV	20
Over 350 kV to 500 kV	25
Over 500 kV to 750 kV	35
Over 750 kV to 1,000 kV	45
Over 1,000 kV	Established by Customer

- 5.9.13. Lifting of personnel is permitted with pin-on baskets when:
- a. The basket, attachment, pins and connection are inspected and verified prior to each lift by a Qualified Person;
- 5.9.14. Pin-on baskets used with boom trucks shall not exceed the capacity, rating, or scope recommended by the manufacturer.
- 5.9.15. Hoisting of personnel with suspended baskets shall be permitted only when boom-attached baskets cannot access the work area and the following are completed:
- a. The basket, attachment, bridle, and connections are designed and approved for hoisting operations;
  - b. The operator remains at the operator station while personnel are elevated;
  - c. A trial lift has been completed that verifies the location, reach and clearances;
  - d. A proof test has been completed;
  - e. The personnel platform is not overloaded;
  - f. The total weight of the load, (basket, personnel, material and tools) does not exceed fifty percent (50%) of the rated capacity for the radius and configuration;
  - g. An anti-two-block device is installed, tested and operational;
  - h. The load line, if capable of a free fall, has this function disabled;
  - i. Wind speed is less than twenty (20) mph at the personnel platform;
  - j. If wind speed exceeds twenty (20) mph, the operator must determine if the wind speed creates an unsafe operating condition

- k. These rules are completed for each crane setup location; and
- l. A pre-lift meeting is completed and documented.

**Table 5.10 Approved Hand Signals**

 <b>1. Hoist Up</b>	 <b>2. Hoist Down</b>	 <b>3. Main Hoist Up</b>	 <b>4. Aux Hoist</b>
 <b>5. Boom Up</b>	 <b>6. Boom Down</b>	 <b>7. Move Slow</b>	 <b>8. Load Down</b>
 <b>9. Boom down Load up</b>	 <b>10. Swing</b>	 <b>11. Dog Off</b>	 <b>12. Stop</b>
 <b>13. Crawler both tracks</b>	 <b>14. Crawler 1 track</b>	 <b>15. Extend</b>	 <b>16. Retract</b>

## 5.10. Training

5.10.1. Specific training shall be required for company-owned or leased equipment. Equipment identified below may require operator licensing and/or training; this list is not inclusive:

- a. Forklifts;
- b. Aerial lifts—boom lifts;
- c. Cranes;
- d. Scissor lifts;
- e. Off-highway vehicles on MSHA-regulated property; and
- f. Commercial vehicles.



# Section 6      Chemicals / Hazardous Materials

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## 6.1.      *General*

- 6.1.1. Management shall develop, maintain and administer a written Hazard Communication program.
- 6.1.2. Hazardous, flammable or combustible materials shall be stored in designated locations.
- 6.1.3. Hazardous materials shall not be stored in or near egress routes.
- 6.1.4. Employees shall receive training on the types of chemicals or hazardous materials they may be exposed to in the workplace.
- 6.1.5. Employees who use, transport, dispose of or disturb chemicals or hazardous materials shall be trained in the proper use, disposal, storage and PPE requirements for the substance.
- 6.1.6. Chemicals or materials shall be kept in the original container. Transfer of chemicals or materials is permitted for quantities limited to one-day use.
- 6.1.7. All containers shall be labeled. Unlabeled containers are not permitted.
- 6.1.8. Spills or leaks shall be cleaned up and disposed of properly.
- 6.1.9. Containers shall be disposed of properly.
- 6.1.10. Storage tanks shall have secondary containment or be a double-walled tank.
- 6.1.11. Regulated materials, (explosives, radioactive) shall only be handled, stored or transported by Qualified and Authorized Persons.
- 6.1.12. In any workplace with a threshold quantity of highly hazardous chemicals, the Management shall establish a Process Safety Management compliance plan. Employees shall not work in a PSM covered process without training and authorization.
- 6.1.13. In any workplace involved in hazardous waste cleanup or emergency response the Management shall establish a Hazardous Waste Operations and Emergency Response

plan. Employees shall not work in a HAZWOPER process without training and authorization.

## 6.2. *Flammable and Combustible Liquids*

- 6.2.1. Flammable and Combustible Liquids shall be stored in approved and properly labeled safety cans.
- 6.2.2. Portable tanks and containers containing Flammable or Combustible Liquids shall be labeled with the material type and no-smoking signage.
- 6.2.3. Flammable and Combustible Liquids shall be stored in an approved storage cabinet.
- 6.2.4. Flammable and Combustible Liquid storage cabinets shall be Grounded or ventilated.
- 6.2.5. Approved Bonding connections shall be attached during transfer of Flammable Liquids.
- 6.2.6. Motors and engines shall be shut off during refueling.
- 6.2.7. Indoor storage of Flammable and Combustible Liquids shall not be in or near egress paths.

## 6.3. *Compressed Gases*

### **General**

- 6.3.1. If cylinders are equipped with caps, they shall be in place for storage, transport, and handling.
- 6.3.2. Cylinders in use shall be secured and positioned upright.
- 6.3.3. Cylinder valves shall be checked to ensure they are closed.
- 6.3.4. Cylinders shall be “cracked” to ensure the throat is free of debris. Cracked means opening the valve slightly and then closed immediately.
- 6.3.5. Compressed gases shall only be used when supplied with appropriate regulators, valves and hoses for the type of gas.
- 6.3.6. Never interchange regulators and hoses with different gases.
- 6.3.7. Compressed gas cylinders shall never be taken into Confined Spaces or Enclosed Spaces.
- 6.3.8. Gases shall not be transferred from cylinder to cylinder.
- 6.3.9. Cylinder storage shall comply with Rule 6.3.30 to 6.3.37.

- 6.3.10. Cylinders shall not be used as rollers or supports.
- 6.3.11. Cylinders shall have pressure relief devices installed and maintained according to the manufacturer or supplier instructions.
- 6.3.12. If a leak develops at the cylinder, the cylinder shall be removed from the work area.

### **Oxygen**

- 6.3.13. Oxygen shall be stored a minimum of twenty (20) feet from combustible gas cylinders (propane, acetylene, etc) or separated by a thirty- (30) minute fire-rated wall with a minimum height of five (5) feet.
- 6.3.14. Oxygen gauges, valves and hoses shall be free of oil, grease, dirt and other contaminants.
- 6.3.15. Oxygen hoses, attachments, regulators or valves shall not be lubricated, cleaned or maintained with oil, grease or other petroleum products.

### **LPG (Propane Gas)**

- 6.3.16. LPG storage tanks and equipment used within buildings shall be equipped with a flow shutoff valve.
- 6.3.17. LPG storage tanks less than five hundred (500) gallons shall be placed at least ten (10) feet from an occupied building. Larger storage tanks shall be positioned per OSHA and fire department regulations.
- 6.3.18. LPG shall not be stored inside of buildings.
- 6.3.19. LPG tank valves shall not be cracked in an area where sparks, heat or flames are present. Cracked means opening the valve slightly and then closed immediately.

### **Acetylene / Hydrogen (Fuel Gas Cylinders)**

- 6.3.20. Fuel gas cylinder valves shall not be cracked in an area where sparks, heat or flames are present.
- 6.3.21. Acetylene cylinders shall be stored, transported and operated upright at all times.
- 6.3.22. Acetylene cylinder valves shall only be opened ¼ to 1 turn to facilitate quick closing.
- 6.3.23. Acetylene cylinder valve wrenches shall remain in place on the valve during operation.

- 6.3.24. Acetylene pressure in hoses shall never exceed fifteen (15) p.s.i. at any time.

### **CO<sup>2</sup> Carbon Dioxide**

- 6.3.25. CO<sup>2</sup> gas shall not make contact with exposed portions of the body.

### **Inert Gases**

- 6.3.26. Inert gases such as argon, neon and others shall be stored in areas separate from oxidizers or fuel gas cylinders.

### **Storage / Transport and Handling**

- 6.3.27. Cylinders shall be stored:
- a. Away from vehicle and pedestrian passages;
  - b. In an upright position;
  - c. With valves closed and caps installed; and
  - d. With similar materials grouped together.
- 6.3.28. Cylinders shall meet DOT regulations.
- 6.3.29. Cylinders shall be secured with fire resistant materials while in storage, during use and during transport to prevent tipping or displacement. Rope is only to be used when other means are not available.
- 6.3.30. Cylinders shall have caps in place during storage, transport and handling. In-use safety caps are recommended for all cylinders.
- 6.3.31. Cylinders transported over public roadways shall be secured per DOT load-securement requirements.
- 6.3.32. All compressed gas cylinders shall be stored in areas where they are not subject to heat or flame or temperatures exceeding 125°F (52°C).
- 6.3.33. Cylinders shall remain upright at all times except for short periods of time during hoisting or lifting.
- 6.3.34. Hand carrying of cylinders exceeding thirty (30) pounds is not permitted.

## **6.4. Explosives**

- 6.4.1. Explosives shall only be permitted with a Site-Specific Task **Error! Bookmark not defined.** Plan approved by Management.

- 6.4.2. Explosives includes any operation involving dynamite, blasting caps, implosive sleeves, black powder, detonating cord, 2-part explosives, ignition safety fuses, igniters or igniter cord.
- 6.4.3. Contact the Safety Personnel for detailed information regarding blasting or explosives.
- 6.4.4. Only Qualified and Authorized Persons shall handle, store, transport or use explosives.
- 6.4.5. Employees shall comply with manufacturer specific guidelines and federal, state and local regulations.

## 6.5. *Acids and Caustics*

- 6.5.1. Only Qualified and Authorized Persons shall handle acids or caustics.
- 6.5.2. Employees shall wear the appropriate PPE and have available the proper reagent material to inert the chemical. Refer to the material specific SDS.
- 6.5.3. Acids and caustics shall be stored in designated areas and in proper containers. Acids and caustics shall not be stored in metallic containers.

## 6.6. *Combustible Metals*

- 6.6.1. The only combustible metal approved for use is the metallic component of an explosive that is supplied as a manufactured product. (CadWeld, Implosive Sleeves, etc.)
- 6.6.2. Combustible metals such as sodium, potassium, lithium, and magnesium are prohibited.

## 6.7. *Chemical or Liquid Transfer*

- 6.7.1. Only Qualified and Authorized Persons shall transfer chemicals, liquids or hazardous materials.
- 6.7.2. Transfer shall only be performed in designated areas with adequate ventilation and adequate spill-prevention materials.
- 6.7.3. Transfer of liquids that may be or are flammable shall require the use of Bonding cables and proper Grounding of the supply tank.
- 6.7.4. Transfer of liquids with splash potential shall require the use of face shields, splash-proof goggles, gloves and body

protection; refer to material-specific Safety Data Sheet (SDS), formerly known as MSDS.

- 6.7.5. Appropriate first-aid supplies, showers or eye wash stations shall be available in the transfer area.
- 6.7.6. Secondary containers shall be labeled as required in Section 24.2.

## 6.8. *Lead Awareness*

- 6.8.1. Lead awareness training is required at time of hire, during orientation or before initial assignment in areas where lead is suspected and annual refresher training is conducted. Lead awareness training is required for employees whose work activities may contact lead containing materials but do not disturb the material during their work activities. Lead awareness training is required at time of hire, during orientation, or before assignment to areas containing lead.
- 6.8.2. Refresher training must be given annually.
- 6.8.3. Documentation of training - Lead awareness training shall be documented including dates of training, location of training, employee name and trainer name.
- 6.8.4. Training will include the health effects of lead, how to report suspected locations of lead containing material and not to disturb any possible lead containing material.
- 6.8.5. Training records shall be provided upon request all materials relating to the employee information and training program to regulatory agencies.

## 6.9. *Lead*

This procedure applies to operations where employees may be exposed to lead while working with lead containing materials during routine maintenance or emergency situations.

### 6.9.1. Written Compliance Program

Each worksite shall develop and implement written project/task site specific lead exposure procedures prior to the start of activities to reduce exposure to or below the permissible limits if exposure is possible.

The procedure shall include engineering controls, work practices, PPE, documentation of air sampling, including the source of lead, a description of each lead related task in which lead is emitted should be outlined and all employees shall be trained prior to work beginning.

The program shall be revised and updated at least every 6 months.

### 6.9.2. Permissible Exposure Limits

Per OSHA regulation, employees shall not be exposed to greater than 50 micrograms per cubic meter of air (50 µg/m<sup>3</sup>), time-weighted average, during an 8-hour workday. This permissible exposure limit (PEL) includes the use of respiratory protection. If an employee is exposed more than 8 hours in any one workday, the maximum PEL (µg/m<sup>3</sup>) shall be calculated by using the following formula:

400/hours worked in the day

For example: 400/12 hours = 33.33 µg/m<sup>3</sup>

If respirators are used to supplement engineering and/or work practice controls, the respirator's protection factor may be used to determine compliance with the PEL.

### 6.9.3. Exposure (Air) Monitoring

Exposure is defined in this section to be any employee who is not wearing a respirator to meet the Action Level and monitoring requirements in this section

Initial air samples shall be representative of the employee's regular, daily activities.

Initial breathing air sampling results:

If the initial monitoring is less than the Action Level, monitoring need not be repeated unless there has been a production, process, control, or personnel change which may result in new or additional exposure to lead

If the initial determination or subsequent monitoring reveals employee exposure to be at or above the Action Level but below the PEL, monitoring must be performed at least every six (6) months, with the cycle continuing until two (2) samples taken at least seven (7) days apart are below the action level

If the initial determination exceeds the PEL, monitoring will be performed quarterly until two (2) samples taken at least seven (7) days apart are below the PEL but above the Action Level, and the monitoring frequency described above will be used

Within 15 working days after the receipt of the results of any monitoring Management shall notify all affected employees of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Whenever the results indicate that the exposure, without regard to respirators, exceeds the permissible exposure limit, Management shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

#### 6.9.4. Control Measures

##### *Engineering Controls*

If an employee is exposed to lead above the PEL for 30 or more days in a year, engineering controls, including administrative controls, will be implemented to reduce the exposure to or below the permissible exposure. If such controls are not feasible Management must demonstrate and document the reasons.

Respiratory protection will be used if engineering and administrative controls are not effective in reducing the exposure to or below the PEL

If air is re-circulated back into the workplace, the system must be equipped with a HEPA (high efficiency particulate air) and backup filter, and a system to monitor the lead level will be installed

When using mechanical means to remove lead-containing paints or coatings, use equipment which is equipped with a HEPA collection system

Whenever possible, use a wet system to reduce airborne dust

Whenever possible, substitute lead material with non-lead material

### *Administrative Controls*

Administrative controls will include job rotation schedules to reduce employee PEL exposure.

When exposure to lead is at or above the PEL Management shall provide lunch rooms, decontamination, changing, shower and hygiene facilities.

Regulated access signs will demarcate the lead exposure regulated work areas. Signs should not be removed or defaced. The signs will read as follows:

**WARNING**

**LEAD WORK AREA**

**POISON**

**NO SMOKING OR EATING**

### *Personal Protective Equipment*

Respirators shall be used during the time period required to install or implement control if engineering and work practices are insufficient as well as for emergency use.

PPE will be selected on the basis of its ability to prevent absorption, inhalation and ingestion and will be provided to employees at no cost.

PPE will reflect the needs of the employee based on work conditions, amount and duration of exposure and other known environmental factors.

If respirators are required, they will be NIOSH certified and all employees will follow the Management Respiratory Protection Program.

An employee may choose a NIOSH certified powered, air purifying respirator (PAPR) at no extra cost to the employee. The respirator shall be used during the time period necessary to install or implement engineering or work practice controls.

Gloves, hats, vented goggles, shoes or disposable shoe covers shall be provided at no cost. Protective clothing shall be clean and dry. Protective clothing shall be cleaned, laundered, repair and replaced as necessary and

disposable clothing shall be identified and handled properly.

#### 6.9.5. Medical Surveillance

A baseline blood sample shall be obtained prior to any lead exposure.

Employees who are or may be exposed above the Action Level for more than 30 days per year will be included in a medical surveillance program which is performed by or under the supervision of a licensed physician at no cost to the employee.

Any employee with elevated blood levels shall be temporarily removed.

Blood sampling and monitoring will occur at least every 6 months to each affected employee until two consecutive blood samples and analysis are acceptable.

Employees shall be notified in writing within 5 days of blood sampling results when lead levels are not acceptable.

Blood sampling shall occur on a monthly during a removal period of each employee removed from exposure to lead due to an elevated blood lead level.

Whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the level for medical removal Management shall provide a second (follow-up) blood sampling test within two weeks after Management receives the results of the first blood sampling test.

#### 6.9.6. Medical Removal

Employees will be removed from exposure to lead when an exposure meets or exceeds the Action Level on each occasion that a periodic and follow-up blood sampling test indicates that blood lead level is at or above 60 µg/100 g of whole blood.

An employee will be removed from exposure to lead when the average of the last three (3) blood sampling tests indicates the employee's blood level is at or above 50 µg/100 g of whole blood (the employee need not be removed if the last blood sampling test shows blood lead level to be at or below 40 µg/100 g of whole blood).

If the employee's blood lead level does not decline adequately with 18 months of removal, the employee will be offered a medical examination to determine if the employee may be returned to his or her former job status.

Medical Removal Protection requirements of 1910.1025(k)(2) shall be followed.

#### 6.9.7. Recordkeeping

Medical surveillance records shall be maintained for 30 years after termination of employment.

Exposure monitoring records shall be maintained for 30 years after completion of the project.

Exposure and medical monitoring records shall be made available to affected employees or their representatives and to regulatory agencies upon request.

#### 6.9.8. Training

Training shall be provided to employees who have the potential to exposure of lead prior to the time of initial assignment and annually thereafter. All affected employees are required to attend training programs. Training will include the following:

Distribute a copy of the content of the lead standard and Appendices A and B of the regulation and it's readily availability for employees

Content of any compliance plan in effect

Access to information and training records

Specific operations where lead exposure is or could result in being above the action level

Engineering controls and work practices associated with the job

Purpose, proper selection, fitting, use, and limitations of respirators

Purpose and description of the medical surveillance program, which will include potential health effects, (including there could be adverse effects on reproductive systems) and the medical removal program

Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician;

Training records shall be provided upon request all materials relating to the employee information and training program to regulatory agencies.

# Section 7 Excavations

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## 7.1. General

- 7.1.1. Competent Person(s) shall be at the work site at all times while employees are working in excavations.
- 7.1.2. Only Qualified and Authorized Persons shall work in or around excavations.
- 7.1.3. The local utility-locating service shall be notified in accordance with the locating service requirements prior to the start of excavating activities. The Person-In-Charge shall verify that the notification and marking is completed.
- 7.1.4. Compliance with local area rules shall determine the distance from each side of the utility-locate mark.
- 7.1.5. Final locations of underground utilities shall be determined by safe means prior to mechanical excavation.
- 7.1.6. Exposed utilities and encumbrances shall be adequately supported and protected from damage.
- 7.1.7. Employees, pedestrians and vehicular traffic shall be protected from excavation hazards to the level determined by the Competent Person.
- 7.1.8. Excavations shall be barricaded if left open past the end of the work shift to the level determined by the Competent Person.
- 7.1.9. Excavations performed within the buffer zone to buried facilities shall be done by non-destructive means.
- 7.1.10. Water accumulation around and in the excavation shall be prevented. Standing water shall be removed from the excavation.
- 7.1.11. If the Competent Person suspects the presence of, or the potential for, a Hazardous Atmosphere in excavations in excess of four (4) feet deep, the atmosphere shall be tested. Testing shall determine the work procedures in compliance with Confined Space safety rules.
- 7.1.12. Employees shall be protected from spoils, materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least two (2) feet from the edge of the excavation, or by the use of retaining devices that are sufficient to prevent materials or

equipment from falling or rolling into excavations, or by a combination of both, if necessary.

- 7.1.13. The Competent Person shall inspect excavations prior to employees entering the trench and after each change in conditions.
- 7.1.14. Excavations exceeding twenty (20) feet in depth in which employees may enter shall be designed and engineered by a professional engineer.
- 7.1.15. The Competent Person shall complete the Excavation / Trenching form prior to employees entering the excavation.

## 7.2. *Employee Protection*

- 7.2.1. Employees shall be protected from cave-ins and falling objects in excavations of any depth.
- 7.2.2. Excavations at or exceeding five (5) feet in depth which employees may enter shall have protective methods installed for employee protection. Methods to provide protection are sloping, benching, shielding or shoring.
- 7.2.3. Sloping or benching shall comply with the angles specified:
  - a. Class A soil; ¾:1                    53°
  - b. Class B soil; 1:1                    45°
  - c. Class C soil; 1½:1                    33°
- 7.2.4. Employees shall be provided with safe means of entry and egress. Ladders or ramps shall be stationed within twenty-five (25) feet of any employee in the excavation. Ramps shall be designed such that an employee can walk upright.
- 7.2.5. The Competent Person shall determine the appropriate fall protection system for employees working near excavations.
- 7.2.6. Employees working near traffic shall wear approved retro-reflective clothing.
- 7.2.7. Employees working near machinery shall wear approved high-visibility clothing.
- 7.2.8. Equipment shall be positioned to eliminate the potential of cave-ins. If equipment is required to be at the edge of an excavation, the excavation shall be shored or braced to prevent displacement or cave-in.
- 7.2.9. Employees shall not cross excavations exceeding two (2) feet in width and four (4) feet in depth. Excavations

exceeding these dimensions that are to be crossed shall have appropriate walkways with guard rail systems.

- 7.2.10. Unattended wells, pits, shafts, boreholes, etc. shall be covered.
- 7.2.11. Employees working near or adjacent to wells, pits, shafts, boreholes, etc. that cannot be covered and are larger than three (3) feet in diameter and four (4) feet in depth shall implement the following:
  - a. Establish a highly visible zone at a minimum of six (6) feet from each side of the excavation.
  - b. Employees crossing into the identified zone shall be protected from falls by a personal fall-arrest system or proper fall restraint.
- 7.2.12. Employees shall not enter wells, pits, shafts, boreholes and other confined excavations without approval from Management and Safety.

**NOTE: Wells, pits, shafts in excess of four (4) feet may be classified as a Confined Space.**

- 7.2.13. Electrically Qualified Persons exposing, working on or near, working in close proximity to, or hand excavating near Energized underground electrical conductors shall wear appropriate rubber insulating PPE.
- 7.2.14. If displacement, cracking, settling or other hazards are present or develop, all employees shall exit the trench and the Competent Person shall evaluate the condition.
- 7.2.15. Employees shall not re-enter an excavation until the hazard has been corrected to permit safe entry.

### *7.3. Soil Classification / Soil Testing*

- 7.3.1. The Competent Person shall classify the soil materials.
  - a. The soil classification shall be based upon a minimum of one visual observation and one manual analysis.
- 7.3.2. Multiple soil types may be present and the least stable soil type shall determine the type of protection to be implemented.
- 7.3.3. The Competent Person shall determine the protective system based upon the soil classification.

## 7.4. *Shoring and Shielding*

- 7.4.1. Shoring and shielding components shall have the manufacturer data at the work site.
- 7.4.2. Shoring and shielding shall be capable of withstanding the intended loads and installed per manufacturer specifications.
- 7.4.3. The Competent Person shall inspect the shoring or shielding each day, if conditions change or if the components are altered.
- 7.4.4. Shoring or shielding with visible damage that compromises the integrity of the system shall not be installed. If components are damaged during use, all employees shall exit the excavation immediately; then the component shall be repaired or replaced.
- 7.4.5. Installation of the components shall be performed so that employees are protected at all times.
- 7.4.6. Removal of the components shall be performed so that employees are protected at all times. If employees must enter the excavation for removal, then removal shall occur from the bottom of the trench and proceed upward. Jacks or braces shall be released slowly to prevent collapse.
- 7.4.7. Protective systems for excavations exceeding twenty (20) feet in depth shall be designed by a professional engineer.

## 7.5. *Damage to Underground Utilities*

- 7.5.1. If underground utilities (electric, water, communications, sewer, gas, storm water, TV) are damaged, the facility owner and Management shall be immediately notified.
- 7.5.2. The area shall be barricaded and unauthorized personnel shall be kept at a safe distance.
- 7.5.3. If a gas facility is damaged:
  - a. Evacuate non-essential personnel from the area;
  - b. Eliminate sources of ignition;
  - c. Secure the damaged area;
  - d. Contact the operator; and
  - e. If buildings are in the area, warn and notify the occupants downwind.

# Section 8      Confined / Enclosed Spaces

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## 8.1.      *General*

- 8.1.1. Only Qualified and Authorized Persons can enter Confined Spaces or Enclosed Spaces.
- 8.1.2. Employees are prohibited from entering Permit Required Confined Spaces without specific written authorization (e.g., permit or documented reclassification.)
- 8.1.3. Competent Person(s) shall be present at all times when employees are entering or working in the space.
- 8.1.4. The Competent Person shall:
  - a. Classify the space in one of the following categories: Permit-Required Confined Space; Re-Classified Confined Space (Non-Permit-Required Confined Space); or Enclosed Space. (**Reference Rules 8.1.11, 8.1.12 and 8.6.1**)
  - b. Specify acceptable entry conditions and any necessary isolation, purging, inerting and/or ventilation;
  - c. Develop and implement a rescue plan prior to entry;
  - d. Identify the Authorized Persons to enter the space (entrants) and the Authorized Persons who shall stay outside the space (attendants);
  - e. Ensure the entrants and the attendants fulfill their responsibilities;
  - f. Initiate and control the entry permit;
  - g. Ensure acceptable entry conditions are achieved;
  - h. Ensure issuance and cancellation of permits;
  - i. Document the information on Form # 40.0021; and
  - j. Ensure compliance with rules contained in this section.
- 8.1.5. Entrants shall:
  - a. Be knowledgeable of the space hazards and signs of exposure;
  - b. Don all appropriate PPE prior to entering;
  - c. Maintain communication with the attendant at all times;

- d. Exit the space when adverse conditions are present (e.g., alarm event occurs, warning signs of overexposure are present or, an evacuation command is announced); and
  - e. Alert the attendant of adverse conditions.
- 8.1.6. Attendants shall:
- a. Be stationed at the entry location while employees are entering or working in the space;
  - b. Know the existing and potential hazards;
  - c. Know the signs of overexposure;
  - d. Maintain communication with the entrants;
  - e. Ensure proper operation of ventilation and air-monitoring equipment;
  - f. Order evacuations when an adverse condition is identified;
  - g. Perform non-entry rescues when possible;
  - h. Remain outside the space at all times;
  - i. Summon rescue or emergency services;
  - j. Ensure unauthorized persons do not enter the work area or space; and
  - k. Not perform duties that interfere with these rules.
- 8.1.7. Guardrails or barriers shall be erected to prevent falls into Confined Spaces or Enclosed Spaces.
- 8.1.8. Employees may not enter the space prior to achieving acceptable entry conditions unless supplied-air respirators are provided for all entrants.
- 8.1.9. Employees may not enter IDLH (Immediately Dangerous to Life and Health) environments. Contact Safety Personnel for more information.
- 8.1.10. If a Hazardous Atmosphere or other hazard is introduced, all employees shall immediately exit the space.
- 8.1.11. Enclosed Space entry shall comply with Sections 8.1 to 8.5 and require:
- a. Retrieval equipment to be at the work location; and
  - b. Attendants to be positioned at the entrance to the space.
- 8.1.12. An Enclosed Space containing hazards other than electrical components shall be classified as a Permit Required Confined Space and reclassified by Section 8.7.

- 8.1.13. Spaces may be declassified per Company procedures.
- 8.1.14. Each district office shall complete an evaluation of the program and forward changes or recommendations to the VP Safety annually.

## 8.2. *Atmospheric Testing / Monitoring*

- 8.2.1. Only Qualified and Authorized employees shall operate test instruments.
- 8.2.2. Competent Person(s) shall attempt to identify potential toxic chemicals that could affect the space during space evaluation. These potential toxic chemicals shall be monitored.
- 8.2.3. Testing around the perimeter of the opening shall occur prior to removing the cover.
- 8.2.4. Testing shall be performed prior to each entry.
- 8.2.5. Testing shall occur at the top, middle and bottom of the space.
- 8.2.6. The breathing zone of Entrants working in the space shall be tested.
- 8.2.7. Testing of the space shall be performed and verified prior to any employee entering the space. Any employee may observe the testing.
- 8.2.8. Testing shall be continuous for Confined and Enclosed Spaces.
- 8.2.9. If the testing device fails or sounds an alarm, all employees shall immediately exit the space.

## 8.3. *Ventilation*

- 8.3.1. Purging of the space shall occur prior to employees entering the space.
- 8.3.2. Spaces shall be continuously ventilated while employees are in the space.
- 8.3.3. Ventilation equipment shall be positioned so that contaminated atmospheres are not captured by the ventilation fan and blown into the space.

## 8.4. *Rescue*

- 8.4.1. Only Qualified and Authorized persons may enter a space to perform a rescue if properly equipped.

- 8.4.2. Rescue personnel and equipment shall be readily available at the entry location.
- 8.4.3. Employees, contractors, or others performing rescues shall be informed of the hazards and don the appropriate retrieval equipment to aid in rescue.
- 8.4.4. Rescue equipment shall be inspected before employees enter the space.

## 8.5. *Test Instrument Calibration*

- 8.5.1. Only Qualified and Authorized Persons shall calibrate and bump-test instruments.
- 8.5.2. Instruments shall be calibrated and bump-tested per manufacturer requirements.
- 8.5.3. Instruments shall have the date of the last calibration or an internal electronic date in the software of the instrument.

## 8.6. *Permit Required Confined Space Reclassification*

### **Non-Permit Entry**

- 8.6.1. Spaces may be reclassified as a Non-Permit Confined Space provided that:
  - a. The space does not contain any potential or actual Hazardous Atmosphere;
  - b. All other hazards are eliminated without entry; (e.g. a new underground vault without conductors)
  - c. The space remains reclassified for as long as the hazards remain eliminated.
  - d. The space has continuous atmospheric monitoring;
  - e. The proper forms are completed for documentation; and
  - f. If any hazards are identified or develop, all Entrants shall immediately evacuate the space.
- 8.6.2. If Entrants are evacuated, the space shall be reevaluated and designated as a Permit-Required Confined Space if hazards cannot be controlled.

### **Alternate Entry**

- 8.6.3. Spaces may be reclassified as an alternate entry provided that:

- a. The space only contains an actual or potential Hazardous Atmosphere;
  - b. All other hazards are eliminated without entry (e.g. a waste water / sewer vault);
  - c. The space maintains acceptable entry conditions by forced air ventilation;
  - d. The space has continuous atmospheric monitoring;
  - e. The proper forms are completed for documentation; and
  - f. If a Hazardous Atmosphere is detected, all Entrants shall immediately evacuate the space.
- 8.6.4. If a Hazardous Atmosphere is detected, the space shall be evaluated and the source of the Hazardous Atmosphere shall be identified prior to re-entry.

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# Section 9      Welding, Cutting and Grinding

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## 9.1.      *General*

- 9.1.1. Only Qualified and Authorized Persons shall perform welding, cutting or grinding.
- 9.1.2. Fire-prevention procedures shall be implemented when welding, cutting or grinding.
- 9.1.3. Oxygen, acetylene and propane tank rules are provided in Section 6.3.
- 9.1.4. Fire protection equipment rules are provided in Section 1.12.
- 9.1.5. Welders shall wear an appropriate helmet with the proper shade for the type of weld process. Helpers positioned to hold or support the materials shall wear the same level of protection as the welder.
- 9.1.6. Face shields shall be worn when chipping slag, removing scale, or any grinding activities.
- 9.1.7. Welding or cutting on galvanized materials or stainless steel shall require a well-ventilated area, local area ventilation or respiratory protection.
- 9.1.8. Leather gauntlets and appropriate clothing shall be worn while welding, cutting or grinding.
- 9.1.9. Sparks, hot embers or fire shall be contained in the work area by installing appropriate barriers such as fire blankets, barriers or flash screens.
- 9.1.10. Welding shall not be performed in areas containing a Hazardous Atmosphere.
- 9.1.11. Welding screens shall be positioned to ensure other personnel are protected from the arc.
- 9.1.12. Employees shall keep their face out of the fume or smoke plume, or respiratory protection shall be donned.
- 9.1.13. Never hold two electrode holders, or one electrode holder and a torch, at the same time. An employee shall only hold one (1) welding device at a time unless the welding devices are Deenergized.

- 9.1.14. Welding operations in Confined and Enclosed Spaces shall be in compliance with Section 8.

## 9.2. *Electric Arc Welding*

- 9.2.1. Current carrying cables shall be inspected prior to use and rated for the anticipated current.
- 9.2.2. Cable connectors shall be adequately secured.
- 9.2.3. The cable to the electrode holder end (stinger) shall be free of damage.
- 9.2.4. Electrode holders (stinger) left unattended shall have the electrode (rod) removed and the holder placed away from employees and conductive objects.
- 9.2.5. Grounding connections shall be placed as close as possible to the work location.
- 9.2.6. Current-carrying cables shall be routed away from unauthorized personnel.
- 9.2.7. Cables and rod holders shall be routed away from water and not dipped in water.
- 9.2.8. Damaged cables shall be repaired prior to use.
- 9.2.9. Connections shall be inspected prior to each use.
- 9.2.10. Connections and cable connectors shall have the appropriate rating and insulation.

## 9.3. *Oxyacetylene Torch Welding and Cutting*

- 9.3.1. Hoses, torches and connections shall be inspected prior to each use.
- 9.3.2. Fuel and oxygen hoses shall be readily distinguishable from each other either by color.
- 9.3.3. Cylinders shall be “cracked” prior to connection to a regulator. Cracked means opening the valve slightly and then closed immediately.
- 9.3.4. Oxygen hoses, fittings and couplings shall be free of petroleum products at all times. Proper cleaning methods shall be employed.
- 9.3.5. Cylinders shall be placed:
- a. At a sufficient distance away from the welding operation;
  - b. Where they will not contact an electric circuit or an electrode; and

- c. In locations where they are not exposed to excessive heat.
- 9.3.6. Torches and torch tips shall be cleaned with appropriate cleaning materials.
- 9.3.7. Torches shall be lighted by friction lighters or other approved methods; cigarettes, matches or lighters are not permitted.
- 9.3.8. Hoses and hose connections shall be leak-tested.
- 9.3.9. One way check valves shall be installed on each regulator.
- 9.3.10. Acetylene hose pressure shall not exceed fifteen (15) p.s.i.

#### 9.4. *Endothermic and Exothermic Welding (CadWeld / TerraWeld, Implosive Sleeves, etc.)*

- 9.4.1. Implosive sleeves are classified as an explosive; the Person-In-Charge shall ensure compliance with federal, state and local regulations.
- 9.4.2. The explosive materials, molds and igniting equipment shall be compatible.
- 9.4.3. Materials, molds, igniters and filler material shall be visually inspected prior to welding operations.
- 9.4.4. The thermoweld charge shall only be ignited by means of a flint gun or manufacturer-approved device. Extension devices are recommended.
- 9.4.5. Employees shall not position any portion of their body directly above the top opening of the mold.
- 9.4.6. Molds shall:
  - a. Be properly supported and secured prior to igniting;
  - b. Not be held in the hands;
  - c. Be pre-heated in cold weather to remove moisture;
  - d. Not contain any moisture, snow or water;
  - e. Not be opened during the welding process; and
  - f. Be stored in clean and dry areas.
- 9.4.7. Employees shall wear all required PPE including face and body protection. Manufacturer shall specify required PPE.
- 9.4.8. Employees shall have the space required to safely exit the area.

## 9.5. *MIG Welding (Gas Metal Arc Welding)*

- 9.5.1. MIG machines shall be properly Grounded through the electrical power cord.
- 9.5.2. MIG welding shall only be performed in areas with adequate ventilation.
- 9.5.3. The shielding gas supply shall be shut off when not in use.
- 9.5.4. Hoses and hose connections shall be checked for leaks.
- 9.5.5. MIG welding shall not be performed within fifty (50) feet of degreasing, cleaning, parts washing, spraying or chlorinated solvent operations. The vapors can become toxic and potentially ignite.

# Section 10 Work Area Protection

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## 10.1. Traffic Control

- 10.1.1. Work locations within the boundaries of a right-of-way of highways, roads, or streets shall comply with the local area requirements for temporary traffic control.
- 10.1.2. Only Qualified and Authorized Persons wearing the proper PPE shall be permitted in traffic control zones.
- 10.1.3. Employees within fifteen (15) feet of a right-of-way or roadway shall don the properly rated ANSI retro-reflective garment. Garments shall at a minimum be rated at ANSI Class 2.
- 10.1.4. Work locations encroaching on traffic lanes, closing traffic lanes or shifting traffic lanes shall have written and approved traffic control plans.
- 10.1.5. Traffic control plans shall at a minimum:
  - a. Minimize traffic disruption;
  - b. Ensure proper signage is displayed at proper intervals;
  - c. Minimize employee exposure to traffic hazards;
  - d. Ensure safe passage for pedestrians;
  - e. Provide easy to interpret traffic paths; and
  - f. Provide access for emergency vehicles.
- 10.1.6. The Person-In-Charge shall:
  - a. Be trained in the federal, state and local area requirements;
  - b. Ensure employees have donned the proper PPE;
  - c. Ensure employees comply with the traffic-control plan;
  - d. Ensure signs and devices are removed, covered or taken down when work operations are complete;
  - e. Ensure employees stay out of active traffic lanes (unless flagging or other controls are in place); and

- f. Ensure employees such as flaggers have the proper training prior to performing the operation (check local area rules for training requirements).
- 10.1.7. Employees in temporary traffic-control zones shall:
- a. Comply with traffic-control plans;
  - b. Stay out of active traffic lanes;
  - c. Don the proper high-visibility clothing prior to entering the work area;
  - d. Only cross roadways, streets or highways at designated locations; and
  - e. Be properly trained when required for flagging of traffic-control set up (Comply with federal, state and local requirements).
- 10.1.8. Working at night requires the following safeguards:
- a. Employees shall wear ANSI Class III retro-reflective garments;
  - b. Adequate lighting shall be provided to illuminate the work area;
  - c. Adequate barriers or delineators shall be installed to keep traffic away from work areas; and
  - d. Employees shall receive training in the hazards of nighttime work.
- 10.1.9. Traffic-control devices shall be installed in accordance with the local area requirements.
- 10.1.10. Advance warning signs shall be provided to adequately delineate the work area.
- 10.1.11. Barriers, barricades, delineators or warning devices placed in or near roadways shall only be installed when required by federal, state or local requirements.

## *10.2. Flaggers*

- 10.2.1. Flaggers shall:

- a. Maintain compliance with local area certification or training requirements.
- b. Ensure the proper retro-reflective PPE is donned prior to entering the traffic-control zone.
- c. Be alert to ALL traffic hazards and traffic flows.
- d. Implement an escape route and have the ability to select multiple escape routes.
- e. Provide warning to employees of a hazardous condition.
- f. Stay behind barriers when feasible.
- g. Always stay on the periphery of active traffic lanes and face moving traffic at all times.
- h. Only encroach into active traffic lanes when vehicles are stopped.
- i. Minimize the stopping and slowing of traffic as much as possible.
- j. Ensure traffic is controlled or stopped prior to construction vehicles or personnel crossing active traffic lanes.
- k. Not be distracted or have other duties while flagging. (e.g., cell phone, texting, IPOD)
- l. Utilize all flagging tools in the intended and proper manner.
- m. Provide guidance or direction in a respectful manner to motorists.
- n. Be visible to vehicle operators at the following speed and distances:

**Table 10.2 Flagger Station Sight Distance**

SPEED	DISTANCE
25 MPH	155 FT
30 MPH	200 FT

40 MPH	305 FT
50 MPH	425 FT
60 MPH	570 FT
70 MPH	820 FT

MUTCD 2009 Edition Table 6E-1 Stopping Sight Distance

10.2.2. Stopping and slowing of traffic shall be completed by the use of proper STOP / SLOW techniques. STOP / SLOW paddles are required. Hand signals or flags may be used in an emergency situation or for short term traffic disruptions.

10.2.3. Traffic-control plans (where required) shall be readily available at the work location.

### 10.3. Traffic Control Templates

10.3.1. With Management approval, the following traffic-control templates are permitted for use until a traffic-control plan is developed.

### Sign Spacing

Recommended Advance Warning Sign Minimum Spacing			
Road Type	Distance Between Signs**		
	A	B	C
25 MPH or less	100 feet	100 feet	100 feet
30 – 55 MPH “URBAN”	350 feet	350 feet	350 feet
30 – 55 MPH “RURAL”	500 feet	500 feet	500 feet
Highway / Freeway	1,000 feet	1,500 feet	2,640 feet

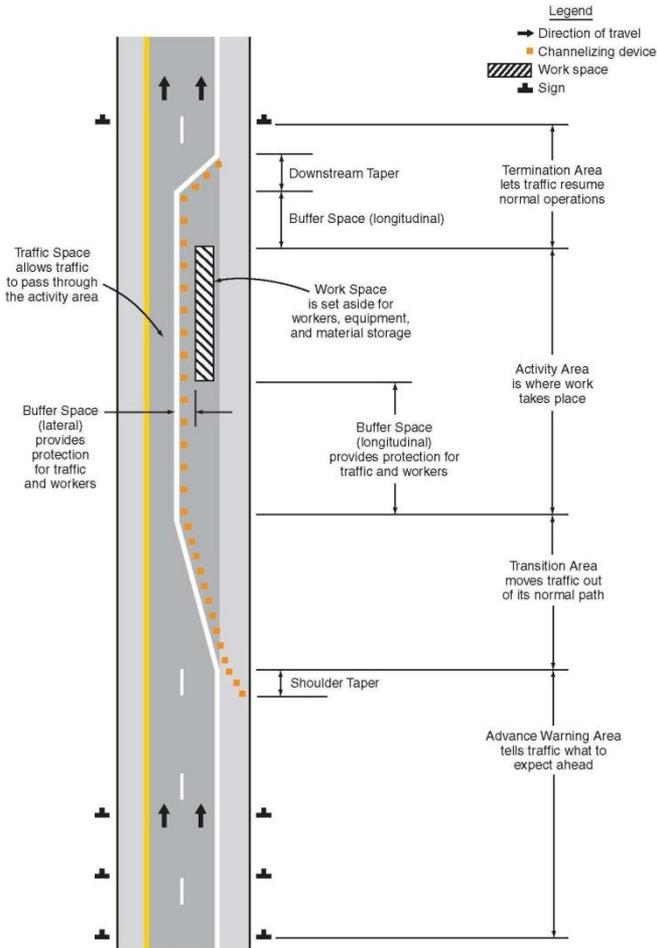
# Taper Lengths

		* Minimum Desirable Taper Lengths			Suggested maximum Spacing of Channelizing Devices	
Posted Speed	Formula	10' Offset	11' Offset	12' Offset	On a taper	On a tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45		450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'

Continued on next page.

# Single Lane Closure on 4-Lane or Divided Highway.

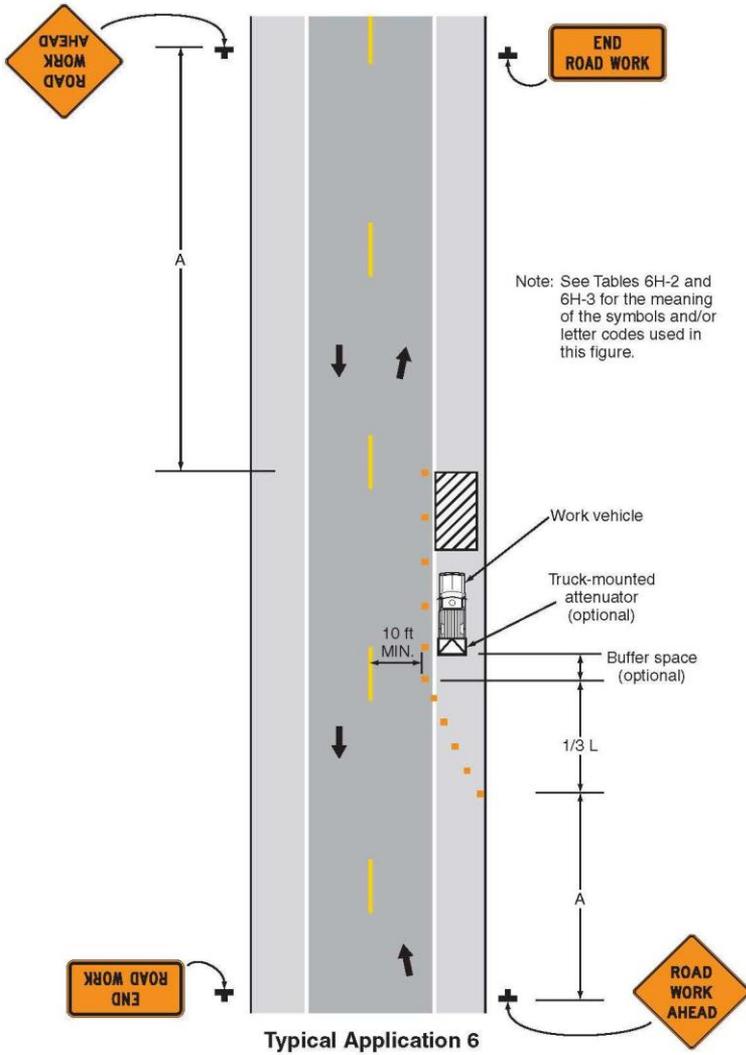
Figure 6C-1. Component Parts of a Temporary Traffic Control Zone



## Shoulder Work with Minor Encroachment.

*Note: The lane width shall not be less than ten (10) feet. If work operations decrease lane width to less than ten (10) feet, a lane closure may be required.*

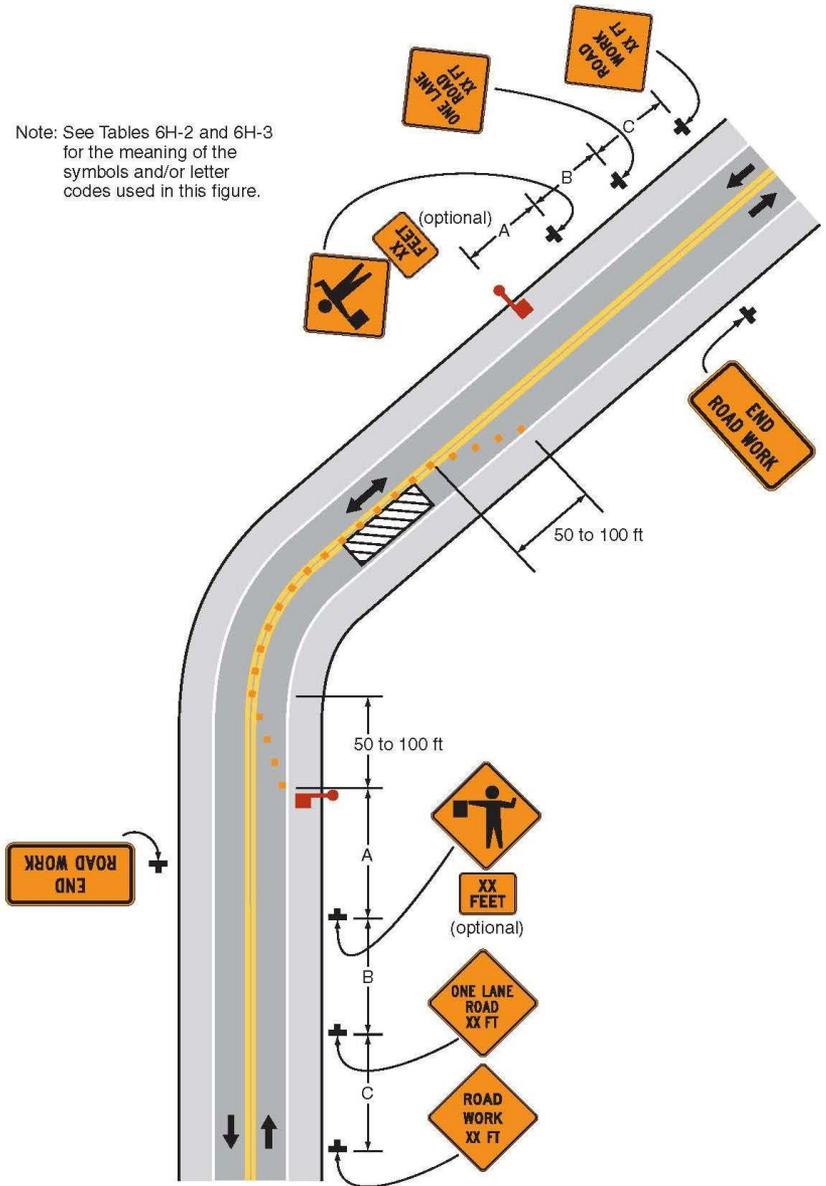
Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



# Lane Closure on a Two-Lane Road Using Flaggers

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.



Typical Application 10

## 10.4. *Railroad Right of Way*

- 10.4.1. Prior to working near the railroad right-of-way, the Management shall ensure the following:
  - a. Railroad customer is contacted;
  - b. Railroad customer requirements are received; and
  - c. Ensure encroachment does not occur without authorization. (Some operators specify fifty (50) feet or twenty-five (25) feet, know your local area rules).
- 10.4.2. Employees shall not mount, dismount or cross over moving on-rail vehicles or equipment.
- 10.4.3. Vehicles or equipment on the track and in travel shall require all passengers to be seated in approved locations with safety belts.
- 10.4.4. Employees shall not walk or place feet on the rails at any time.
- 10.4.5. Employees, vehicles, equipment and tools shall not “Foul the Track” at any time unless proper clearance has been obtained from the railroad customer. Fouling the track means encroaching closer than the distance specified by the railroad operator.
- 10.4.6. The Person-In-Charge shall be aware of exclusive-occupancy periods and ensure all tools, materials, equipment and personnel are clear of the tracks when these periods are in effect.
- 10.4.7. While trains are passing work areas, personnel shall comply with the railroad customer requirements.
- 10.4.8. On-track equipment shall maintain appropriate spacing while traveling.
- 10.4.9. On-track equipment shall have effective means of communication with other on-track equipment.
- 10.4.10. Employees shall not be positioned between on-track vehicles unless the following precautions are taken:
  - a. The vehicles are stopped and blocked or otherwise rendered immovable;
  - b. Safe work zones are established for the equipment per railroad customer requirements; and

- c. Prior to moving a vehicle a spotter shall be positioned to ensure personnel are clear of the front and rear of the vehicle.

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# Section 11 Rigging / Lifting Equipment

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## *11.1. General*

- 11.1.1. Rigging operations shall only be performed by Qualified and Authorized Persons.
- 11.1.2. Rigging components shall be legibly marked such that Working Load Limits (WLL) / Safe Working Load (SWL) can be determined.
- 11.1.3. Rigging equipment shall always be used within the WLL / SWL limits and the design configurations.
- 11.1.4. Rigging equipment designed for hoisting without legible WLL / SWL (or tags) shall be removed from service.
- 11.1.5. Slings shall be hitched in approved methods.
- 11.1.6. Field or shop-fabricated rigging equipment shall be certified and stamped by a third party and shall include a load rating.
- 11.1.7. Loads shall be visually inspected to ensure the rigging will not slip or slide and cause the load to fall.
- 11.1.8. Taglines shall be used on loads which may spin or become uncontrolled during hoisting.
- 11.1.9. Knots shall not be placed in wire rope slings, nylon slings or chain slings.
- 11.1.10. Metallic slings shall not be used around Energized electrical systems unless appropriate Insulate and Isolate techniques are implemented.
- 11.1.11. Employees shall only work under suspended loads when a Site-Specific Task Plan has been approved by Management.

## *11.2. Inspection*

- 11.2.1. Daily inspections shall be completed by a Qualified Person.
- 11.2.2. Annual inspections of rigging equipment shall be completed by Competent Persons.
- 11.2.3. Additional inspections shall be performed after the pick if damage is suspected.

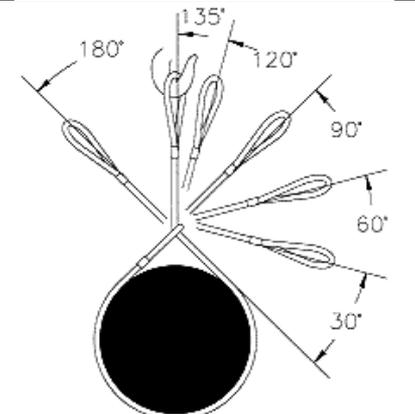
- 11.2.4. Any item not passing an inspection shall be immediately removed from service and tagged Out Of Service.

### *11.3. Synthetic Slings, Nylon and Round*

- 11.3.1. Synthetic slings shall be stored in manner to minimize damage due to sharp edges, oils, solvents, gasoline and other contaminants.
- 11.3.2. Synthetic slings shall be protected against sharp edges.
- 11.3.3. Synthetic slings shall not be exposed to temperatures in excess of 180° F during storage or use.
- 11.3.4. Synthetic slings shall be removed and tagged Out Of Service when they have indication of:
  - a. Acid or caustic burns;
  - b. Melting, charring or thermal burns;
  - c. Snags, punctures, cuts or tears;
  - d. Broken or worn stitching; or
  - e. Distortion of eyes or fittings.

### *11.4. Slings, Wire Rope and Chain*

- 11.4.1. Wire rope and chain equipment shall be stored properly in areas free from standing water, sharp edges, acids and alkali substances.
- 11.4.2. Slings containing excessive rust or corrosion shall be removed from service and tagged Out Of Service.
- 11.4.3. Wire rope slings configured with D:d ratios less than 25:1 shall be derated.
- 11.4.4. Softeners shall be installed on loads where there are sharp edges to ensure:
  - a. The sling is protected from sharp edges and damage; and
  - b. The sling will conform to a rounded edge and not a right angle.
- 11.4.5. Wire rope slings installed in a choker hitch shall be derated when angles are less than one-hundred twenty (120) degrees:

Angle of Choke	Rated Capacity of Single Leg	
120° - 180°	100%	
90° - 120°	87%	
60° - 89°	74%	
30° - 59°	62%	
0° - 29°	49%	

- 11.4.6. Chain slings for overhead lifting shall be a minimum of Grade 80.
- 11.4.7. Chain slings shall have an identification tag attached.
- 11.4.8. Chain slings shall be removed and tagged Out Of Service when:
- Links are bent, worn or deformed;
  - Hooks, latches or end attachments are deformed, cracked, bent or worn; or
  - There is evidence of heat damage or electric arcing.
- 11.4.9. Wire rope slings shall be removed and tagged Out Of Service when:
- Hooks, latches or end attachments are deformed, cracked, bent or damaged;
  - There is evidence of heat damage or electric arcing;
  - Kinking, crushing, strand displacement, bird-caging or any other damage results in wire-rope distortion; and
  - Ten (10) randomly distributed broken wires are present in one lay; or
  - Five (5) broken wires in one strand in one rope lay.

## 11.5. Shackles and Hooks

- 11.5.1. Hooks shall have operational self-closing latches.
- 11.5.2. Shackle pins and rigging eyes shall be seated properly in the hook.
- 11.5.3. Loads shall not be placed against the latch.

- 11.5.4. Shackle bolts shall seat fully at the shoulder.
- 11.5.5. Hooks shall be removed and tagged Out Of Service when:
  - a. The latch is sprung or missing;
  - b. The throat is sprung (opened);
  - c. Hook is twisted or deformed;
  - d. Significantly damaged or unusually worn; or
  - e. Damaged by heat, chemicals or electric arcing.
- 11.5.6. Shackles shall be removed and tagged Out Of Service when:
  - a. The body has spread;
  - b. The shoulder of the pin is not flush with the body;
  - c. The body is bent or distorted;
  - d. Significantly damaged or unusually worn; or
  - e. Damaged by heat, chemicals or electric arcing.

## *11.6. Blocks*

- 11.6.1. Blocks shall be used within the WLL / SWL.
- 11.6.2. Blocks shall be appropriately sized for the wire rope. Blocks shall have a D:d ratio of 16:1 or greater with respect to the rope or line.
- 11.6.3. Snatch blocks used to change wire direction shall be inspected to ensure they are not overloaded.
- 11.6.4. Blocks shall not be installed:
  - a. In locations where they are in a bind;
  - b. Where running lines are not in line with the sheave; or
  - c. Where significant side loading will be imposed.
- 11.6.5. Blocks shall be removed and tagged Out Of Service when:
  - a. The sheaves are worn or damaged;
  - b. The hook nut, thrust bearing, latch, trunnion pin, hook or dead end connection are damaged or defective; or
  - c. Tie bolts or guide bolts are missing.

## *11.7. Synthetic Ropes and Handlines*

- 11.7.1. Ropes shall be selected and maintained based upon the intended purpose.
- 11.7.2. Handlines shall:
  - a. Be inspected prior to use;
  - b. Be used within the SWL / WLL; and
  - c. Be removed from service and tagged Out Of Service when they do not pass an inspection.
- 11.7.3. Ropes shall not be overloaded due to knots. Knots installed in ropes shall require the capacity to be derated by fifty (50) percent.

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# Section 12 Personal Protective Grounding (PPG)

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## 12.1. General Rules

- 12.1.1. Only Qualified and Authorized Persons shall perform PPG operations.
- 12.1.2. Grounding plans shall be communicated to all employees involved in the work tasks.
- 12.1.3. The Person-In-Charge shall be responsible for the proper implementation of the grounding plan.
- 12.1.4. Customer identified grounding procedures shall be incorporated into Company work procedures where required by contractual agreements.
- 12.1.5. M.A.D. shall be maintained while placing and removing PPG.
- 12.1.6. Temporary PPG shall be installed and arranged in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential.
- 12.1.7. Grounding equipment shall be visually inspected prior to use.
- 12.1.8. An Equipotential Work Zone (EPZ) shall be established at the work site.
- 12.1.9. If the creation of an EPZ is impractical, PPGs shall be incorporated with Insulating and Isolating procedures.
- 12.1.10. When working one phase of a multi-phase system; Grounding of only one phase for establishing an EPZ is allowable ONLY if the M.A.D. to adjacent phases is maintained.
- 12.1.11. When establishing an EPZ on wood poles, a “cluster bar” that incorporates a grounding stirrup shall be clamped around the pole below the employee and used to provide a Bonding attachment to establish EPZ.
- 12.1.12. Uninsulated work platforms shall be Bonded to the Grounded conductor being worked.
  - a. Bonding assemblies used for uninsulated aerial baskets or other similar aerial work platforms shall be designed so that they:

- i. Readily break away from the conductor for emergency rescue purposes (but not fall off or come loose during routine use).
  - ii. Do not damage the conductor if a breakaway occurs.
- 12.1.13. When a single PPG is not sufficient, Parallel PPG shall be installed. These cables shall be treated as a single conductor during installation and removal. Additional precautions shall be implemented to ensure the removal of Parallel PPG does not allow an employee to be in series.
  - a. Both conductor ends shall be removed before removing either ground end.
  - b. Clamps shall be attached as closely as possible at each end.
  - c. Ground Sets shall be derated per Rule 12.10.2.
- 12.1.14. PPG sets shall have a legible test date not exceeding twelve (12) months in duration securely attached to the cable assembly.
- 12.1.15. PPG cables shall never remain coiled when installed.
- 12.1.16. PPG clamps shall never be installed on armor rod.
- 12.1.17. Whipping action of PPG cables shall be assessed and the cables shall be secured if the PPG cables pose a hazard to employees due to whipping action.
- 12.1.18. Master Grounds shall be capable of conducting, transferring and withstanding the maximum available fault current for the necessary clearing time.
- 12.1.19. The appropriate clamps shall be used when connecting to bus, conductor, structures, etc., and shall be sized to meet the current carrying capacity of the PPG cable.
- 12.1.20. PPG assemblies that have been exposed to fault current shall be removed from service, tagged Out Of Service and retested.
- 12.1.21. Grounding surfaces shall be clean and free of corrosion, paint or other coatings.
- 12.1.22. PPG shall not be dropped from aloft.
- 12.1.23. When multiple vehicles or equipment are present, they shall be connected to a common Ground source.
- 12.1.24. Pole ground wires used for PPG shall be inspected for the following:

- a. Damage including cuts both above and underground; and
  - b. Cable size to ensure appropriate sizing for the transfer of fault currents.
- 12.1.25. Ground Sets may be removed temporarily for the purpose of testing lines and/or equipment. During the test procedure, each employee shall consider the line and/or equipment as Energized and follow the necessary Energized work procedures.

## *12.2. PPG Installation and Removal*

- 12.2.1. Prior to PPG installation, the Person-In-Charge shall ensure:
- a. The phase and/or circuit is Isolated with a Customer approved clearance;
  - b. Potential sources (e.g., backfeed or closed switches) have been Isolated; and
  - c. Approved voltage detection devices or voltage testers are used to verify that the circuit is absent of voltage.
- 12.2.2. When attaching PPG:
- a. The Ground source connection surfaces shall be cleaned;
  - b. Employees should position themselves below and away from any part to be Grounded in order to keep their bodies away from any arc that may occur when the PPG is attached. Employees shall not hold PPG in their hand during installation; and
  - c. Connections shall be tight.
- 12.2.3. The Ground source end shall be the first connection. This connection to the grounding electrode (ground source or ground rod) can be attached by hand when employees are not encroaching on the M.A.D. or working from the pole.
- 12.2.4. Always Ground the nearest conductor, bus or apparatus first, and then proceed upward / inward.
- 12.2.5. Approved live-line tools shall be used to attach the conductor end.
- 12.2.6. Then attach the opposite end to the next phase conductor to be Grounded with a live-line tool.
- 12.2.7. Repeat Steps 10.2.4 to 10.2.7 for additional phases.
- 12.2.8. When removing PPG:

- a. Employees shall be clear of the conductors and/or equipment that are to be Energized.
  - b. Remove the line/conductor or equipment connection(s) first with an approved live-line tool.
  - c. Then remove the opposite end with an approved live-line tool. (This “opposite end” may be connected to a conductor or may be the Ground source end”.)
  - d. Repeat until you reach the Ground source and then remove the Ground source connection.
- 12.2.9. PPG shall be kept as short as reasonably possible and installed so as to hang without any folds, sharp bends or coils.
- 12.2.10. Ground Sets that must be relocated during work tasks shall not be removed until an additional Ground Set has been installed at the point of relocation.

### *12.3. Ground Rods*

- 12.3.1. Temporary ground rods shall be:
- a. Five / eights inch (5/8”) bronze, copper, copper-clad or copper weld at least five (5) feet long.
  - b. Driven to the maximum depth possible.
  - c. Protected from tampering by the public.
  - d. Placed as far away as reasonable from the work area.
  - e. Barricaded to provide a visible safety buffer zone around temporary ground rods driven at the worksite.
  - f. The driven-type ground rod. If driven ground rods are not available, the “screw-in or auger” type may be used.
- 12.3.2. Ground sources shall be utilized in the order listed, when to do so will not create an additional safety hazard:
- a. Station Ground;
  - b. Overhead or underground primary neutral;
  - c. Steel structure with integral grounds;
  - d. Permanently driven ground rod;
  - e. Temporarily driven ground rod;
  - f. Pole ground wire.

- 12.3.3. Insulated Overhead Ground Wire (OHGW) shall not be used as a Ground source unless it is properly cleared, tested and Grounded.

## *12.4. Transmission Line Grounding*

- 12.4.1. The Person-In-Charge shall develop, and implement the company grounding plan. This plan shall be documented on MYR Form # 40.0066—Transmission Ground Plan.
- 12.4.2. Management shall review the grounding plan.
- 12.4.3. The grounding plan shall be maintained with the project documents.
- 12.4.4. Employees on the ground shall be protected from hazardous Step and Touch Potentials by:
  - a. An EPZ;
  - b. Barricades; or
  - c. Insulated platforms or conductive grounding mats Bonded to the conductor / equipment.
- 12.4.5. A temporary grounding jumper shall be installed prior to cutting or removing jumpers so as to eliminate any open point in the Grounded circuit.
- 12.4.6. Ground switches at extra-high voltage (EHV, 500kV, 345kV) terminals shall be closed before the line is tested and PPGs are installed on the line.
- 12.4.7. OHGW Bonded to the structures shall be considered as a primary Ground source unless there is a less hazardous Ground source available (e.g., Grounding to the neutral wire for Grounding under build circuits).

## *12.5. Substation Grounding*

- 12.5.1. The Person-In-Charge shall develop and implement the Company grounding plan. This plan shall be documented on MYR Form # 40.0066—Transmission Ground Plan.
- 12.5.2. Management shall review the grounding plan.
- 12.5.3. The grounding plan shall be maintained with the project documents.

- 12.5.4. The Person-In-Charge shall communicate the grounding plan and ensure employees are aware of the Energized sections of the substation.
- 12.5.5. Station ground mats in substation and switchyards that conform to the requirements of “IEEE Guide for Safety in AC Substation Grounding” (ANSI/IEEE STD. 80-1998) are considered an equipotential zone (EPZ).
- 12.5.6. PPG in substations shall be placed as close as practical to the work area.
- 12.5.7. Work performed on equipment such as transformers, breakers, etc., shall require a Ground Set to be placed on each bushing lead not visibly Grounded.
- 12.5.8. Neutral reactors shall not be worked on unless Deenergized or bypassed with Ground Sets.
- 12.5.9. Transformer cases, breaker housings, etc. shall be treated as Energized unless an inspection of the ground straps and connections has been performed and it has been determine that these parts are Grounded.
- 12.5.10. When working on Deenergized enclosed switches (OCB’s, etc.) PPG shall be installed on both sides of the switch.
- 12.5.11. Switches, breakers, etc., shall not be used to extend a Grounded circuit.

## *12.6. Distribution Grounding*

- 12.6.1. The Person-In-Charge shall develop, implement and communicate the grounding plan or ensure employees work the lines as Energized and don the appropriate rubber insulating PPE.
- 12.6.2. Equipotential zone (EPZ) grounding is the preferred method of employee protection.
- 12.6.3. Creating an EPZ with OHGW requires the installation of a jumper from the lowest Grounded phase to the cluster bar.

## 12.7. *Underground Grounding (URD)*

- 12.7.1. Existing installations of underground cables and equipment shall be considered Energized at all times unless properly disconnected from all sources of potential, tested for potential, and then properly Grounded using approved PPG.
- 12.7.2. Pad mount/submersible transformers may be fed from two directions. For this reason all transformers shall be considered Energized until tests are made and PPG installed.
- 12.7.3. Cables or equipment under clearance shall be tested for voltage and then PPG applied at the first possible Grounding point before work is started.
- 12.7.4. Cables or equipment not tested and Grounded shall be worked with appropriate rubber insulating PPE and adequate IPE as though it was Energized.
- 12.7.5. Due to loop characteristics of underground circuits, both top and bottom portions of primary switches shall be considered Energized, even in the open position until tested and Grounded.
- 12.7.6. Always check to make sure that all Ground Sets have been removed before equipment, which has been Grounded, is placed back into service.
- 12.7.7. Underground cables maintain a capacitive charge and shall be identified as an Energized conductor until tested and PPG are applied.

## 12.8. *Equipment and Vehicle Grounding*

- 12.8.1. Equipment or vehicles that could become Energized during the work process shall be Grounded. Where equipment grounding is not practical, equipment shall be barricaded.
- 12.8.2. The preferred method for identifying equipment Ground Sets is a green outer jacket or green markings on the cable.
- 12.8.3. Isolation methods shall also be applied to keep both personnel and the public away from potential exposure to Step and Touch Potential hazards.

- 12.8.4. Where an employee is to operate equipment while standing on the earth, a conductive grounding mat shall be Bonded to the equipment for the employee to stand on while operating the equipment. An Isolating platform shall be provided for employee ingress and egress to the conductive grounding mat.
- 12.8.5. Employees and operators on the ground shall be informed of the Step and Touch Potential hazards near vehicle(s) and Grounding electrodes (Ground rod, Ground source connection).
- 12.8.6. The employee removing the equipment Ground Set shall physically trace the Ground Set from the equipment to the Ground source before removing the Ground Set.
- 12.8.7. Grounding attachment points on vehicles shall be free of corrosion, paint or other materials which would increase the resistance in the Ground Set.
- 12.8.8. Mobile equipment shall be securely fastened to a properly installed temporary Ground rod or effectively barricaded.

## 12.9. *Personal Protective Grounding (PPG) Equipment Criteria*

- 12.9.1. Minimum wire size for PPG shall be 2/0 stranded copper. Customer may require larger size Ground Sets.
- 12.9.2. PPG assemblies (Ground Sets) shall have tags applied that display the most recent test date.
- 12.9.3. Test dates shall not exceed two-year intervals.
- 12.9.4. Grounding cable jackets are designed for physical protection and do not provide any insulating value. PPG shall be treated as an Energized conductor.
- 12.9.5. Jackets shall have the AWG size and conductor type stamped or printed repeatedly along the length of the cable.

## 12.10. *Personal Protective Grounding Test Requirements*

- 12.10.1. PPG assemblies are only permitted for use when they are designed and constructed in accordance with ASTM F855-1990. ASTM F855 requires:
- a. Cable shall be copper wire;
  - b. Cables shall be welding cable or ASTM Type I, Type II or Type III;
  - c. Cable connections shall utilize pressed ferrules;
  - d. Ground clamps shall meet or exceed the fault current rating of the cable.
  - e. PPG assemblies shall be tested and inspected for resistance after they have been manufactured and every two years thereafter. Local area rules may be more stringent.
  - f. PPG shall have tags applied to identify the most recent test. If these tags are missing or are out of date, the Ground Set shall be taken Out Of Service until it has been properly tested, and the test date is applied.
  - g. Cable to clamp connection shall meet or exceed the specified torque in accordance with ASTM F855-13 standard.
  - h. Approved Ground testers shall be used to verify that the Ground Set meets the requirements for resistance as required by the ASTM standard.
- 12.10.2. Ground Sets shall be selected based upon the anticipated fault current. Reference the below table.

Cable Size	Continuous Current	<u>Withstand Current in Amps</u>		Resistance (milli-ohms /ft) @ 25° C.
		15 Cycle	30 Cycles	
2/0	300	27,000	20,000	0.0811
4/0	400	43,000	30,000	0.0509
2- 2/0 or	450	54,000	39,000	0.0811 for each cable

250kcm				
2- 4/0 or 350 kcm	550	74,000	54,000	0.0509 for each cable

### *12.11. Five Point Grounding Check*

- 12.11.1. Lines shall be Isolated, Deenergized and tested with appropriate equipment (not fuzzed) before installing PPG.
- 12.11.2. Maintain the M.A.D. from an ungrounded conductor as you would an Energized conductor until the conductor is Grounded. This includes working from an uninsulated bucket.
- 12.11.3. M.A.D. shall be maintained while applying and removing PPG with live-line tools of the proper length.
- 12.11.4. Install PPG in a “nearest to farthest” sequence.
- 12.11.5. Remove PPG in a “farthest to nearest” sequence.

***IF IT'S NOT PROPERLY GROUNDED, IT'S NOT DEAD!***

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# Section 13 Overhead T&D

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## 13.1 *General*

- 13.1.1. Only Qualified and Authorized Persons shall perform work on overhead transmission or distribution systems.
- 13.1.2. Primary overhead lines and electrical equipment shall always be worked as Energized unless disconnected from all sources of electricity (visible open), properly tested and Grounded.
- 13.1.3. Poles and towers shall be inspected prior to climbing.
- 13.1.4. Work procedures shall be inclusive of ET&D Partnership Best Practices.
- 13.1.5. Appropriate M.A.D. shall be maintained at all times. When work tasks require M.A.D. to be encroached, appropriate Insulating and Isolating techniques shall be implemented.
- 13.1.6. When two or more employees are working on Energized circuits or equipment and within reach of each other, only one phase shall be worked on at a time.
- 13.1.7. Hand lines shall be controlled so they do not blow into traffic lanes or be in the way of employees ascending or descending. Employees operating a hand line shall not stand below the employees or at the base of the pole.
- 13.1.8. Hand lines, taglines or other lines used or placed within M.A.D. of Energized lines and equipment shall be considered conductive and appropriate Isolating and/or Insulating methods shall be employed.
- 13.1.9. Hand lines shall be utilized for the hoisting and lowering of tools and materials. Small or loose materials shall be contained in a tool bag.
- 13.1.10. Scrap materials are permitted to be dropped to the ground in a designated area and personnel shall be removed from the area.
- 13.1.11. Employees shall not work below other employees unless the task requires employees to be below other employees; when this is required, the following shall be completed:
  - a. Employees shall communicate the work plan, and

- b. Communication methods to warn employees of falling objects shall be identified and implemented.
- 13.1.12. If the potential for backfeed is present, precautions shall be evaluated and implemented.
- 13.1.13. At least two (2) Qualified Persons are required for the following tasks:
- a. Installation, removal, or repair of Energized lines that are at or above six hundred (600) volts.
  - b. Installation, removal or repair of Deenergized lines where employees are exposed to contact (within the M.A.D.) with other parts Energized at more than six hundred (600) volts.
  - c. Installation, removal or repair of equipment such as transformers, capacitors and regulators if an employee is exposed to contact with parts Energized at more than six hundred (600) volts.
  - d. Work involving the use of mechanical equipment, other than Insulated aerial lifts, near parts Energized at more than six hundred (600) volts.
- 13.1.14. A Qualified and Authorized Person may perform the following tasks alone:
- a. Routine switching of circuits, if the employee can perform the work safely.
  - b. Work performed with live-line tools if the employee is positioned so that they are not within the M.A.D. of or otherwise exposed to contact with any Energized parts.
  - c. Emergency repairs to the extent necessary to safeguard the general public.
  - d. Employees engaged in troubleshooting of existing problems on a line.
- 13.1.15. Steel or wood members to be erected, (cross arms, bracing, etc) shall not be released from hoisting lines until secured.
- 13.1.16. Each employee handling poles being set within the M.A.D. of exposed Energized overhead conductors shall don properly rated rubber insulating protective gloves.
- 13.1.17. Reserved.

## **Climbing Equipment**

- 13.1.18. Climbing equipment shall be inspected by the user prior to each use. The following shall be verified:
  - a. Utility pole climbing gaffs shall be kept properly sharpened and at least one and one quarter inches (1 ¼”) in length.
  - b. Straps, rings and leg straps shall be functional and without damage.
  - c. Body belt and fall protection equipment shall be operational.
  - d. Fall-restraint devices shall be operational.
- 13.1.19. Utility pole climbing gaffs shall not be used for climbing or working in trees.
- 13.1.20. Gaff guards shall be in place when not in use.
- 13.1.21. Climbers shall not be worn when driving a vehicle, climbing ladders, working on the ground, while on floors or roofs, or in aerial work platforms.
- 13.1.22. Employees shall ensure positioning equipment is properly adjusted and operational prior to climbing.
- 13.1.23. Employees transitioning around obstructions on structures shall ensure that the secondary belt is positively secured prior to releasing any in use connections.
- 13.1.24. Prior to disengaging any part of the climbing or positioning equipment, employees shall visually verify positive engagement of the snap-hook to the D-ring.
- 13.1.25. Climbing or positioning equipment shall be stored where it cannot be damaged.

## **Switching Procedures**

- 13.1.26. The Person-In-Charge shall ensure Customer-switching procedures shall be adhered to.
- 13.1.27. Prior to re-closing any circuits, the Person-In-Charge shall ensure the following occurs:
  - a. Patrol and inspect the circuit to ensure it is clear from any faulted conditions; and
  - b. Personnel and public are clear of the circuit.
- 13.1.28. Prior to opening circuits, the Person-In-Charge shall ensure the following occurs:

- a. Non-load-rated switches require the use of an appropriately rated load-break tool;
  - b. Opening of jumpers requires an amperage measurement and safeguards to prevent an arc flash;
- 13.1.29. Live-line tools shall be used for switching operations.
- 13.1.30. LOTO and PPE requirements shall be followed when operating hand-operated switching controls.
- 13.1.31. Appropriately rated load pickup and load-break tools shall be used during switching operations.

## 13.2 *Distribution Work Rules*

### **Deenergized Rules**

- 13.2.1 Prior to working on Deenergized equipment, the Person-In-Charge shall ensure:
- a. Customer switching, tagging, and line-clearance rules are implemented.
  - b. The line or circuit has been tested and Grounded.
- 13.2.2 Conductors or equipment to be worked on by hand (without gloves or sleeves) shall have an equipotential zone (EPZ) established prior to any employee touching the conductor or equipment.
- 13.2.3 Always maintain appropriate M.A.D. while equipment is being Deenergized and Grounded.
- 13.2.4 If work tasks cause employees or equipment to encroach on the M.A.D., the work tasks shall conform to the rules in 15.2.6 through 15.2.23.
- 13.2.5 Newly constructed lines may be installed without rubber insulating protective gloves, sleeves and personal grounds only when a Site-Specific Task Plan has been developed and approved by Management and Safety Management.

### **Energized Work Rules (Distribution)**

- 13.2.6 Appropriate rubber insulating protective gloves shall be worn when employees are exposed to voltages greater than fifty (50) volts. Sleeves shall be worn when upper-arm exposure is present. Rubber insulating protective equipment shall be worn in accordance with the ET&D Partnership Best Practices.
- 13.2.7 Live-line tool work shall be performed in compliance with the ET&D Partnership Live-Line Tool Best Practice.

- 13.2.8 Energized and potentially Energized circuits, parts, equipment, etc. shall be properly Insulated and Isolated in accordance with the ET&D Partnership Best Practices.
- 13.2.9 If voltages of Energized lines and equipment are not known, the voltage of the Energized lines and equipment shall be determined prior to working on or near the Energized parts.
- 13.2.10 Only one phase shall be worked on at any time at each location and each employee shall ensure they are Insulated and Isolated from other potentials.
- 13.2.11 When two or more employees are working on Energized circuits or equipment and within M.A.D. of each other, only one phase shall be worked on at a time.
- 13.2.12 Employees working on the Energized lines and equipment shall not exchange tools or materials with other employees who are not properly Insulated or wearing rubber insulating PPE.
- 13.2.13 Energized conductors supported by hoisting equipment shall have appropriately rated live-line tools installed between the conductor and the winch line of the hoisting equipment. M.A.D. shall be maintained by all uninsulated parts of the hoisting equipment.
- 13.2.14 Energized conductors supported by synthetic strap hoists shall be Insulated from the structure.
- 13.2.15 Mechanical jumpers shall be Insulated and Isolated from differences in potential. When installing jumpers ensure they are controlled and properly sized for the load.
- 13.2.16 Only approved devices shall be used to make or break a load.
- 13.2.17 When changing out poles the following shall be completed:
  - a. Pole stress shall not be changed by the addition or removal of guys, conductors, cross arms, etc. unless a determination has been made that the pole can withstand the altered stress;
  - b. Employees shall work from new poles whenever possible.
  - c. Damaged or rotten poles/structures shall be made safe before climbing.
- 13.2.18 The Person-In-Charge shall determine when work activities shall be stopped during adverse weather conditions. The Person-In-Charge is permitted to complete necessary work

operations to ensure the safety of the public provided that employees can perform the work safely.

- 13.2.19 To protect from backfeed, primary leads of a transformer shall be considered Energized at primary voltage until the secondary leads have been disconnected. Disconnected leads shall be physically separated and Isolated to prevent accidental contact with Energized lines or equipment.

### **5kV Circuits and Below**

- 13.2.20 The Rubber Glove Method performed from the pole is permitted on voltages up to 5 kV.

### **5 kV Circuits up to 35kV**

- 13.2.21 The Rubber Glove Method performed from the pole is not permitted on circuits greater than 5kV.
- 13.2.22 The Rubber Glove Method shall be performed from Insulated platforms or Insulated aerial equipment.
- 13.2.23 The Rubber Glove Method performed from Insulated aerial lifts shall be in accordance with the ET&D Partnership Best Practices.

## *13.3 Transmission Work Rules*

### **Deenergized Rules**

- 13.3.1. Prior to working on Deenergized equipment, the Person-In-Charge shall ensure:
- Customer switching, tagging and line-clearance rules are implemented.
  - A grounding plan is developed and implemented in accordance with Rule 12.1.2.
  - The line or circuit has been tested and Grounded.
- 13.3.2. Newly constructed lines may be worked without personal protective grounds provided that a Site-Specific Grounding Plan has been developed by the Person-In-Charge and reviewed by Management and Safety.

### **Energized Work Rules**

- 13.3.3. Live-Line Work shall only be performed when a Site-Specific Task Plan has been developed, implemented and approved by Management and Safety Management.
- 13.3.4. Work on Energized lines shall only be performed by Qualified and Authorized Persons with properly rated live-

line tools unless the work is to be performed with bare-hand techniques.

- 13.3.5. Only one phase shall be worked on at any time at each location, and each employee shall ensure they are Insulated and/or Isolated from other potentials.
- 13.3.6. Cranes, derricks and boom trucks supporting Energized conductors shall have appropriately rated insulating link sticks installed between the conductor and the hoisting equipment.
  - a. Cranes, derricks and boom trucks shall maintain M.A.D. from Energized parts or equipment.
- 13.3.7. Hoists supporting Energized conductors shall have appropriately rated live-line tools installed between the conductor and the hoist.
- 13.3.8. Insulated ladders used to access working locations shall comply with the following:
  - a. Insulated ladders shall be secured and positioned to provide at least the M.A.D. plus a worker envelope that allows for the total length of the employee;
  - b. Insulated ladders shall be made of non-conductive fiberglass reinforced plastic (FRP);
  - c. When employees are in contact with the conductor, while working from Insulated ladders, the employees shall Bond their conductive clothing together and to the line to be worked upon; and
  - d. Ladders shall be rigged with Insulated sticks and clean, dry non-conductive rope.

### **Bare Hand / Live Line Work Rules**

- 13.3.9. Employees performing Live-Line Bare-Hand work shall be Qualified and Authorized Persons.
- 13.3.10. Employees shall be re-qualified if they have not performed Live-Line Bare-Hand work in the past twelve (12) months.
- 13.3.11. Live-Line Bare-Hand work shall only be performed with proper Customer notification. If the Customer requires a permit or work authorization form, the Person-In-Charge shall ensure the work authorization is completed and approved prior to the start of work.
- 13.3.12. Employees performing Live-Line Bare-Hand work shall don the proper conductive apparel prior to entering the M.A.D.

- 13.3.13. Live-Line Bare-Hand work shall be discontinued when the presence of inclement weather or lightning is in the surrounding area.
- 13.3.14. Prior to starting work, the Person-In-Charge shall verify the circuit voltage.
- 13.3.15. The Person-In-Charge or a designated spotter shall:
  - a. Be positioned on the ground at all times;
  - b. Maintain communication with employees aloft; and
  - c. Ensure all boom segments below the Insulated portion do not encroach on the M.A.D.
- 13.3.16. A Qualified and Authorized person shall be stationed on the truck and monitoring the leakage current readings while employees are elevated. This person shall have knowledge of the lower controls and how to remove the bucket or basket from contact with the line.
- 13.3.17. Live-Line Bare-Hand aerial device rules:
  - a. Only company-approved aerial devices with a Class A dielectric rating shall be used;
  - b. Aerial devices shall be inspected prior to each use;
  - c. Insulated portions of the aerial device shall be wiped clean prior to each use;
  - d. Employees using Insulated aerial devices shall always work from a conductive basket or conductive liner in the Insulated bucket;
  - e. The upper metal parts of the upper end of the boom shall be Bonded together;
  - f. Aerial devices shall be properly Grounded;
  - g. Aerial devices shall be barricaded or appropriate controls implemented to ensure ground personnel are prevented from accidentally contacting the vehicle;
  - h. Aerial devices shall have a metallic Bonding device for the purpose of Bonding the employee to the conductor being worked; and
  - i. Lower controls shall be operated before use each day.
- 13.3.18. Leakage current measurement shall be performed daily at each work location and after each time the aerial lift is cradled. Leakage current measurement shall conform to the following:

- a. This verification shall be performed with no one in the bucket;
  - b. Contact shall be held for at least three minutes;
  - c. During this time leakage current readings shall be observed and documented;
  - d. Leakage currents shall not exceed one microampere per kilovolt of phase-to-ground voltage or the values identified by Customer rules; and
  - e. If leakage current exceeds acceptable values, all work shall be stopped immediately and the boom shall be wiped down, then another boom-leakage test will be performed.
- 13.3.19. Bonding leads shall not be used as jumpers, load-pickup or load-break tools.
- 13.3.20. Hand lines shall not be used from Insulated equipment during live-line bare-hand work. Employees shall not place anything on the Insulating component that may decrease its insulating value.
- 13.3.21. Safe Working Load (SWL) shall not be exceeded when using Insulated ladders, Insulated sticks, rope and other associated rigging equipment.

#### *13.4 Conductor Stringing*

- 13.4.1 Management shall ensure that an approved stringing plan is completed for all stringing operations.
- 13.4.2 The Person-in-Charge shall implement the requirements specified in the stringing plan.
- 13.4.3 The “Pre-Pull Wire Stringing Checklist” shall be completed prior to each pull.
- 13.4.4 All pulling and tensioning equipment shall be Isolated, Insulated or effectively Grounded with EPZ established.
- 13.4.5 Employees shall perform visual inspections of all equipment prior to performing work tasks.
- 13.4.6 Reliable and effective communication shall be maintained between the tensioner, puller, spotters and the person watching the lead/sock.
- 13.4.7 The puller and tensioner shall be leveled.
- 13.4.8 Lead distance ratio less than 3:1 shall be reviewed and approved by Management.

- 13.4.9 The Person-In-Charge shall ensure that EPZs are established for wire-stringing operations.
- 13.4.10 Employees shall ensure that the established EPZ is maintained and shall notify the Person-In-Charge of any deficiencies during wire-stringing operations.
- 13.4.11 When the pull is in motion, employees shall maintain safe distances from all moving parts.
- 13.4.12 Grounding travelers shall be installed at the first structure adjacent to the tensioner and puller, if the first structure is not feasible, the grounding traveler shall be installed at the second structure.
- 13.4.13 Running grounds shall be installed between the tensioner and the first structure and Bonded to the common Ground source.
- 13.4.14 Grounding travelers are required on at least one side of an Energized crossing.
- 13.4.15 Wire grips, socks and catch-off devices shall be of the proper size and type for the conductor/wire/cable being caught, and inspected prior to use.
- 13.4.16 PPG shall be installed at snubs and catch-off point locations.
- 13.4.17 Snub sites, splicing sites, etc., left unattended shall be guarded, barricaded or visually identified.
- 13.4.18 Splicing operations shall require the following:
  - a. Grounds shall be installed on each side of the work area;
  - b. The two ends to be spliced shall be Bonded to each other; and
  - c. Employees working on the ground shall stand on a splicing rig or a conductive mat that is Bonded to the conductor being spliced to maintain an EPZ.
- 13.4.19 Clipping operations shall require:
  - a. The establishment of an EPZ for employee protection;
  - b. The employees to be aware of pinch points and in- the-bite hazards created by the stringing blocks, pulling line and the conductor; and
  - c. Elevated employees shall ensure that elevated booms are not positioned under conductors. If booms are under

conductors, one additional safety shall be installed between the conductor and the tower.

13.4.20 PPG shall not be removed until conductor installation is complete.

### **Stringing Parallel to Energized Lines**

13.4.21 Stringing operations adjacent to Energized parallel lines shall include these additional requirements:

- a. The tension-stringing method shall be used so that there will not be contact between the Energized conductors and the conductors being installed or removed;
- b. Pulling and tensioning equipment shall be Isolated, Insulated or effectively Grounded with EPZ established for each piece of equipment;
- c. Ground Sets shall be installed to effectively Ground each bare conductor, sub-conductor or overhead ground conductor;
- d. Except for moving-type grounds, the PPG shall be installed and removed with an approved hot stick;
- e. Ground Sets shall be installed on each traveling conductor at intervals not exceeding two (2) miles or more frequently, dependent upon levels of induced voltages; and
- f. Grounded travelers shall be used on one side of an Energized crossing (600v and above). Multiple distribution hot crossings may be considered as “one hot crossing” when identified as such in the Site-Specific Grounding Plan.
  - i. If the design of the circuit-interrupting devices protecting the line so permits, the automated reclosing feature of those devices shall be made inoperative.

### **13.5 Overhead Line Equipment**

13.5.1 Transformer oil samples shall only be taken when transformers are Deenergized.

### **Capacitors**

13.5.2 Capacitors shall be Deenergized, and employees shall wait five minutes, then the terminals shall be Bonded to the frame with an approved live-line tool.

## **Load Break Devices**

- 13.5.3 Load shall be determined (amperage) and the properly rated load-break device shall be utilized.
- 13.5.4 Load-break tools shall be used and operated in accordance with manufacturer instructions.

## **Regulators**

- 13.5.5 Regulators shall be brought on and off line per Customer procedures.

## **Automatic Reclosing Devices**

- 13.5.6 When the reclosing device has a non-reclosing feature, the employees performing work shall request that the auto feature be disabled for the duration of their task(s) or shift.

## **Lightning Arrestors**

- 13.5.7 Lightning arrestors shall be Deenergized / Energized with a hot stick.

## *13.6 Setting Poles and Lattice Structures*

- 13.6.1 Employees should stay out of the swing area of the pole or tower and also stay out of the fall zone.
- 13.6.2 All components shall be inspected prior to hoisting to ensure they are fully assembled and all required fastening has been completed.
- 13.6.3 Employees positioned in connecting locations during setting operations shall not transfer onto the member being connected until it is securely attached to the structure.
- 13.6.4 When induced voltages may be a hazard, the hoisted structure shall be Bonded to the foundation or existing structure during the setting work activity.

## *13.7 Material Handling*

- 13.7.1. Material storage shall not be located under Energized bus, conductors, lines or equipment except when less hazardous locations are not available.
- 13.7.2. If material storage is located under Energized parts or equipment, or is to be placed near Energized equipment; appropriate M.A.D. shall be maintained at all times.
- 13.7.3. Qualified observers shall be used when maneuvering large or lengthy objects near Energized parts.

- 13.7.4. Pole tongs shall be properly rated, sized and approved for the task.

### *13.8 Helicopter Rules*

- 13.8.1. All personnel associated with helicopter operations shall be trained and briefed daily to the level necessary as deemed appropriate by the helicopter company representative.
- 13.8.2. Daily tailboards shall include the following:
  - a. Identification of signal person;
  - b. Communication methods between ground crew, flight crew, signal person and identification of all applicable hand signals;
  - c. Landing zones, pick zones, travel paths;
  - d. Rigging and lifting procedures;
  - e. Safe approach zones to the helicopter;
  - f. Never approach a helicopter from the rear of the aircraft;
  - g. Stay as low as possible when approaching aircraft. Keep tools, materials, clothing and arms below your head at all times.
  - h. Always allow the steel load-line cable to contact the ground, tower or otherwise be Bonded to a Grounded object before grasping or handling the cable.
  - i. Visual inspection for FOD (foreign/flying-object debris); and
  - j. Appropriate PPE, goggles, chin straps, secure clothing.
- 13.8.3. All on-board tools and supplies shall be stowed in secure containers prior to lift off and during flight.
- 13.8.4. When long-lining personnel, grapple hooks and lifting equipment shall not be attached to the aircraft.
- 13.8.5. Never throw any items into, out of or while inside the aircraft.

### **Working from the Skid**

- 13.8.6. Working from the skid shall only be performed when a Site-Specific Task Plan is developed and approved by Management and the helicopter company representative.

## **Transfer Procedures**

- 13.8.7. Transferring from a helicopter shall only be performed when a Site-Specific Task Plan is developed and approved by the Management and the helicopter company representative.

# Section 14 Underground T&D

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## 14.1. General

- 14.1.1. Only Qualified and Authorized Persons will perform work on underground transmission or distribution systems.
- 14.1.2. Cables shall be treated as Energized until identified and proven to be Deenergized, tested and Grounded.
- 14.1.3. Work procedures shall be inclusive of ET&D Partnership Best Practices.
- 14.1.4. Management shall develop and implement a Site-Specific Task Plan for work tasks involving cables containing lead or asbestos.
- 14.1.5. Employees shall receive the proper training and certification prior to working on asbestos or lead-sheathed cable.
- 14.1.6. Exposed Energized cables in excavations or vaults that are not to be worked on shall be covered (Insulated) and protected to prevent accidental contact or damage. Blast-suppression blankets may be necessary in certain environments.
- 14.1.7. Barriers, barricades or Isolating materials shall be installed to prevent employees from encroaching on the M.A.D. to Exposed Energized equipment.
- 14.1.8. Employees carrying, moving or transporting materials shall always maintain appropriate clearances from Energized parts.
- 14.1.9. When two or more employees are working on Energized circuits or equipment and within reach of each other, only one phase shall be worked at a time.
- 14.1.10. When removing animals, weeds, vines, grass, vegetation or other materials from any underground equipment, the employee shall:
  - a. Don rubber insulating protective gloves and sleeves; or
  - b. Use approved live-line tools.
- 14.1.11. Rubber insulating protective gloves and sleeves shall be worn when opening and closing the doors of Energized equipment.

- 14.1.12. Visible door hinges of each enclosure shall be checked for damage prior to opening. Both hands shall be used to keep positive control of the enclosure. Doors with blocking devices incorporated shall be blocked to prevent the door from closing.
- 14.1.13. All required PPE shall be donned prior to the start of work.
- 14.1.14. Equipotential zones (EPZ) will be established for the protection of employees where possible.
- 14.1.15. The Job Briefing shall identify any back-feed potential.
- 14.1.16. Prior to opening equipment, if windows are present, check the position of the switch blades.

### **Switching Procedures**

- 14.1.17. Customer switching procedures shall be adhered to.
- 14.1.18. Prior to re-closing any circuits, the Person-In-Charge shall ensure the following occurs:
  - a. Inspect the circuit; and
  - b. Personnel and public are clear of the circuit.
- 14.1.19. Prior to opening circuits, the Person-in-Charge shall ensure the following occurs:
  - a. Non-load rated switches shall require the use of an appropriately rated load-break tool;
  - b. Opening of jumpers shall require an amperage measurement and safeguards to prevent an arc flash;
- 14.1.20. Live-line tools shall be used for switching operations.
- 14.1.21. LOTO and PPE requirements shall be followed when operating hand-operated switching controls.
- 14.1.22. Employees shall maintain a safe distance from view ports, hinged doors, and blast chutes during switching operations.

## *14.2. Deenergized Work Rules*

- 14.2.1. Prior to working on Deenergized equipment, the Person-In-Charge shall ensure:
  - a. Customer switching, tagging and line-clearance rules are implemented.
  - b. The line or circuit has been tested and Grounded.

- 14.2.2. Before working on a primary cable in a trench or a pull box containing more than one primary circuit:
  - a. Positively identify the cable to be worked on by utilizing a phase-pulse indicator or similar tool.
  - b. Appropriate PPE shall be worn if contact could be made with Energized jacketed cable.
  - c. After the cable to be worked has been identified, the cables not being worked may be re-energized after safeguards are provided to protect the employees and the Energized cables from inadvertent damage (e.g., Insulate or Isolate the cables).
- 14.2.3. Cables to be worked on shall be Grounded at points as close to the work area as possible.
  - a. Concentric cables shall have the neutral/shield Bonded to the Grounded conductor prior to working on the conductor to dissipate the capacitive charge.

### *14.3. Energized Work Rules*

- 14.3.1. All employees must maintain a minimum of five (5) feet of clearance from all open cabinets. Employees encroaching within the five (5) feet clearance limitation shall have all appropriate PPE donned.

**NOTE:**

*The five foot distance is an administrative demarcation arc around open cabinets or enclosures required by the ET&D Best Practices.*

- 14.3.2. Employees shall only be in contact with one phase at any time.
- 14.3.3. Energized underground conductors or equipments shall never be handled by hand without appropriate PPE.
- 14.3.4. Elbows shall only be moved with hot sticks and with extreme caution. Switch cabinets, pad-mount transformers and other Energized equipment that are open shall have a qualified attendant at all times.

### *14.4. URD Circuits*

- 14.4.1. Prior to performing work on a Grounded cable, the cable shall be tested and then spiked to ensure it is Deenergized and Grounded.

- 14.4.2. Employees shall be removed from the spiking location. Employees shall not remain in vaults, trenches, or underground locations during spiking operations.
- 14.4.3. Spiking operations shall only be performed with the appropriate live-line spiking tool and the cable shall be Grounded on each side of the work location prior to spiking.
- 14.4.4. Spiking devices shall be connected with a hot stick and shall be operated remotely by a hot stick or hydraulic-powered means. Spiking devices shall never be applied or operated without the proper live-line tools.

### *14.5. Pulling Cables*

- 14.5.1. Employees shall perform visual inspections of all equipment to ensure equipment is properly rated (WLL) for the pull.
- 14.5.2. Employees shall be positioned in locations “out of the bite” and at safe distances from rigging and pulling equipment in anticipation of failure of any component.
- 14.5.3. Conductive pulling equipment shall not be pushed, blown or pulled by vacuum into ducts or Energized areas where contact with Energized lines or equipment may occur unless all Energized parts are securely covered by proper IPE.
- 14.5.4. Employees shall not remain in vaults or enclosures on the pulling end during the pulling operation.

### *14.6. Directional Boring*

- 14.6.1. Prior to directional drilling, Management and Safety shall develop and implement a Site-Specific Task Plan.
- 14.6.2. Operators, tenders and other employees shall be Qualified and Authorized for the specific equipment.

### *14.7. Pot Holing*

- 14.7.1. Prior to hydro pot-holing, Management and Safety shall develop and implement a Site-Specific Task Plan.
- 14.7.2. All pot-holing activities will be performed by Qualified and Authorized Persons.

- 14.7.3. Pot-holing for utilities is required when excavating under, over, near or adjacent to existing utilities.
- 14.7.4. All utility-locate procedures shall comply with local area rules. (Reference state or local mandates.)
- 14.7.5. Employees pot-holing near Energized electrical cables shall wear rubber insulating protective gloves and dielectric boots rated for the phase-to-phase voltage.

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# Section 15 Substations

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## 15.1. General

- 15.1.1. Only Qualified and Authorized Persons shall perform work in substations.
- 15.1.2. The Person-In-Charge shall ensure personnel entering or leaving a supervisory-controlled substation notify the Customer representative.
- 15.1.3. Work procedures shall be inclusive of ET&D Partnership Best Practices.
- 15.1.4. Employees shall maintain appropriate M.A.D. from Energized bays and equipment.
- 15.1.5. Management or the Person-In-Charge shall obtain permission from the Customer representative prior to parking or driving into substation yards.
- 15.1.6. Gates shall be locked when substations are unattended.
- 15.1.7. Conductive fencing and temporary conductive fencing shall be Bonded to the Grounding grid.
- 15.1.8. Temporary perimeter fencing shall have the same warning signs as a permanent perimeter fence.
- 15.1.9. Employees shall not work below other employees unless the task requires employees to be below other employees. When this is required, the following shall be completed:
  - a. Employees shall communicate the work plan, and
  - b. Communication methods to warn employees of falling objects shall be identified and implemented.
- 15.1.10. Bussing, lines, conductors and equipment shall be considered as Energized unless tested, Grounded and EPZ is established.
- 15.1.11. Employees carrying or moving materials in an Energized yard shall ensure:
  - a. M.A.D. is not encroached;
  - b. Safe travel paths are identified; and
  - c. Lengthy objects shall either be handled below the shoulders or handled by a person on each end.

- 15.1.12. Employees shall only climb on structures or equipment that is stable, secured and capable of supporting the total weight of the employee, tools and material.
- 15.1.13. Storage trailers, support equipment and material shall be stored in areas that do not interfere with ingress, egress, bussing or the structures.
- 15.1.14. Storage trailers placed in Energized yards shall be Bonded to the Grounding grid.
- 15.1.15. Spotters are required for any vehicle traveling in an Energized section of a substation.
- 15.1.16. Flammable liquids shall be stored in an NFPA approved storage container or cabinet in areas away from Energized equipment.
- 15.1.17. Management shall develop and implement a Site-Specific Task Plan when working on hydrogen or nitrogen filled equipment.
- 15.1.18. Employees shall not intentionally drop items to the ground or throw items to elevated employees.
  - a. Hand lines shall be utilized for the hoisting and lowering of tools and materials. Small or loose materials shall be contained in a tool bag.
  - b. Scrap materials are permitted to be dropped to the ground in a designated area and personnel shall be removed from the area.
- 15.1.19. Breakers shall be Grounded on both sides.
  - a. If one side is not part of the clearance, that side shall be identified as Energized and properly barricaded or Isolated.
- 15.1.20. Back-feed potential shall be ascertained for all work tasks.
- 15.1.21. Newly installed substation equipment shall be Isolated from the existing substation equipment and not connected until the final phase of construction.
- 15.1.22. Newly installed ground grid shall be Isolated from the existing grid and not connected until the final phase of construction.
- 15.1.23. Motor-operated devices within the clearance shall be disabled and rendered inoperative.
- 15.1.24. The Person-in-Charge shall ensure the crew members are aware of the grounding plan, Energized sections, locations

of PPG and identifying the breakers or switches that shutdown or Isolate the work area.

## 15.2. *Working Clearances*

- 15.2.1. Vehicles with radio antennae shall have each antenna secured so as not to encroach on the M.A.D.
- 15.2.2. Energized sections of a substation shall be demarcated with ropes, caution tape or barricades to ensure personnel do not encroach upon Energized equipment.
- 15.2.3. Metallic devices (tape measures or duct rodding) shall only be used when each end is under the control of a Qualified Person to ensure metallic devices do not contact Energized parts.
- 15.2.4. To prevent damage to substation and company equipment, clearances shall be maintained during vehicle, equipment and material movement. Spotters are required for all vehicle, equipment or material movement when potential contact with equipment exists.
- 15.2.5. Vehicle, equipment or material movement in Energized substations shall require a spotter to ensure the M.A.D. is not breached.

## 15.3. *Deenergized Work Rules*

- 15.3.1. Prior to working on Deenergized equipment, the Person-In-Charge shall ensure:
  - a. Customer switching, tagging, and line-clearance rules are implemented.
  - b. The line or circuit has been tested and Grounded.
- 15.3.2. Conductors or equipment to be worked on by hand (without gloves or sleeves) shall have an EPZ established prior to any employee touching the conductor or equipment.

## 15.4. *Energized Work Rules*

- 15.4.1. Energized locations shall be identified and barricaded to prevent unauthorized access.
- 15.4.2. Energized panels adjacent to work operations shall be covered or Isolated.
- 15.4.3. Deenergizing transformers that are equipped with a neutral transformer, resistor or reactor in the neutral bus shall require the neutral to be disconnected when the phase

conductors are disconnected. If this is not possible, the transformer shall not be Grounded and shall be identified as Energized equipment.

## **Switching**

- 15.4.4. The Person-In-Charge shall ensure Customer switching procedures shall be adhered to.
- 15.4.5. Employees shall be positioned at a safe distance when operating air-break switches
- 15.4.6. Employees operating disconnect switches shall stand firmly on the equipotential grid (ground mat) and touch only the switch handle or control panel.
  - a. Disconnect switches for distribution voltages that do not have an equipotential mat shall require the employee to don the appropriate rubber insulating protective gloves.
- 15.4.7. Employees shall maintain a safe distance from view ports, hinged doors and blast chutes during switching operations.
- 15.4.8. Switch sticks, hot sticks, or shotgun sticks shall be selected based upon the voltage.
- 15.4.9. Employees shall don the proper PPE for switching operations.

## **15.5. Substation Equipment**

- 15.5.1. Employees shall perform visual inspections of all equipment prior to performing work tasks.
- 15.5.2. Employees entering tanks, vessels or other confined locations shall comply with Confined Space rules.
- 15.5.3. Equipment shall be evaluated for the presence of polychlorinated biphenyl (PCB) compounds. If PCB-contaminated materials are present; contact the Safety Department for guidance.
- 15.5.4. Equipment shall not be used as an anchorage point for a personal fall-arrest system unless evaluated and approved by a Site-Specific Task Plan.

## **Gas Insulated Switchgear and Circuit Breakers**

- 15.5.5. Prior to employees working in or entering switch cabinets the differential pressure across the switch barrier insulator shall be eliminated in the adjacent cabinet.
- 15.5.6. Spring-loaded switching mechanisms shall be isolated, discharged and LOTO applied.

- 15.5.7. Air-blast circuit breakers require special grounding procedures. Refer to Customer procedures.
- 15.5.8. Tanks, bushings, pumps and filter apparatus shall be electrically Bonded to a common Ground before oil is transferred into Deenergized circuit breakers.
- 15.5.9. Prior to moving the Grounding strap from the ground switch /test probe, a temporary Ground Set shall be connected to the probe before connecting test leads. This temporary Ground Set may be removed for tests.
- 15.5.10. Circuit breakers and switches on distribution circuits shall only be opened or closed with approved live-line tools.

### **SF6 Circuit Breakers**

- 15.5.11. Tank pressure shall be reduced to zero prior to opening breaker tanks.
- 15.5.12. Breaker tanks shall not be entered until proper Confined Space procedures have been implemented.
- 15.5.13. Proper respiratory and skin-protection equipment (PPE) shall be donned during exposure to SF6 or the byproducts of SF6 decomposition. (Sulfur Hexafluoride).

### **Lightning Arrestors**

- 15.5.14. M.A.D. distances shall not be encroached upon until the lightning arrestors have been Deenergized.
- 15.5.15. Lightning arrestors shall not be connected to an Energized circuit unless there is a switching shield between the arrestor and the exposed employees.
- 15.5.16. Lightning arrestors are not to be climbed upon.

### **Capacitor Banks**

- 15.5.17. Insulated frames of capacitor banks shall be considered Energized until they are Deenergized, Grounded and shunted.
- 15.5.18. When capacitor banks are Deenergized, employees shall wait five (5) minutes before connecting Ground Sets.
- 15.5.19. Capacitor banks containing floating neutrals (wye-connected systems) shall have the floating neutral Grounded in addition to the phase conductors prior to employees working on the equipment.

## **Transformers**

- 15.5.20. Insulators, bushings, cooling fins and capacitor stacks shall not be climbed on.
- 15.5.21. When removing or installing oil, all windings, tanks, pumps, filters, and equipment frames shall be Bonded together and to the system ground.
- 15.5.22. Working inside a transformer requires compliance with Confined Space procedures.
- 15.5.23. Transformers equipped with a neutral bus require specific procedures for Grounding. Customer or manufacturer procedures shall be followed at all times.
- 15.5.24. Employees shall not short-circuit or Ground any Energized component of an Energized transformer.
- 15.5.25. Voltage shall not be applied to a Deenergized secondary circuit without ensuring the primary circuit is disconnected and guarded or barricaded.
- 15.5.26. The secondary circuit of a current transformer shall not be opened while the current transformer is Energized.
- 15.5.27. If the primary of the current transformer cannot be Deenergized before work is performed on an instrument, a relay or other protective device; the secondary circuit of the current transformer shall be Isolated.
- 15.5.28. Oil samples shall not be taken from Energized power transformers.

## **Batteries**

- 15.5.29. Flames, sparks, torches and other high-heat devices shall be kept away from battery systems due to hydrogen gas release during battery charging.
- 15.5.30. Metallic tools and equipment shall not contact more than one battery terminal at a time.
- 15.5.31. Long metallic objects shall not be taken into battery rooms until the battery terminals are covered with Insulating barriers.
- 15.5.32. Batteries shall not be opened (chemical exposure) in areas exceeding 125° F. Temperature shall be reduced prior to opening.
- 15.5.33. Batteries shall be protected during installation with Insulating barriers.

- 15.5.34. Employees working on batteries when exposure to the liquids or vapor is present shall don chemical-protective gloves, aprons, face shield and goggles at a minimum. Full-body protection and chemical-protective boots may be required.
- 15.5.35. Live parts of battery strings are considered Energized equipment and require the appropriate PPE and rubber insulating PPE.
- 15.5.36. Appropriate eye-wash facilities shall be within twenty-five (25) feet and readily accessible from the battery area. Shower facilities may be required for lead **Error! Bookmark not defined.**-acid battery installations.
- 15.5.37. Lead-acid batteries shall not be opened around Energized equipment.

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# Section 16 Lockout Tagout (LOTO)

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## 16.1. Facilities

- 16.1.1. Only Qualified and Authorized persons shall perform LOTO operations.
- 16.1.2. Management shall develop, maintain and administer a written LOTO program.
- 16.1.3. Management shall develop written procedures for machinery that is powered by two sources of energy or by a remotely located power source.
- 16.1.4. LOTO operations shall be implemented on all equipment, machinery, Energized systems, and potentially Energized systems in which employees may be exposed to potential energy or the release of energy.
- 16.1.5. Routine maintenance or servicing requiring the removal of a guard, removal of a safety device, or placing a body part into a point of operation or danger zone requires LOTO.
- 16.1.6. Every employee implementing LOTO shall be provided with individual locks.
- 16.1.7. Multiple crews working on systems shall independently comply with these rules:
  - a. Multiple crews can develop group lockout tagout procedures.
  - b. One Person-In-Charge shall be designated the Authorized Person and retain responsibility for all employees involved.
- 16.1.8. Authorized Persons shall be identified at each facility.
- 16.1.9. Authorized Persons shall notify Affected Persons of the LOTO operation.
- 16.1.10. Only the Authorized Person placing the lock or tag shall have the authority to remove their respective lock or tag.
- 16.1.11. If an Authorized Person is not present to remove their lock and tag, all reasonable attempts shall be made to contact the employee. The Person-In-Charge shall ensure that all local area procedures for the unavailable Authorized Person are completed. The employee shall be notified of the removal immediately upon their return.
- 16.1.12. The Authorized Person or the Person-In-Charge shall operate the system controls to ensure the LOTO devices

are adequately secured. The system or equipment shall not be capable of restarting. (Test or Tryout Rule)

- 16.1.13. Shift work or personnel changes require the Person-In-Charge to ensure compliance with these rules. The Person(s)-In-Charges shall coordinate a shift change or the addition of personnel to a LOTO process.
- 16.1.14. Lockout Tagout is NOT the following:
  - a. Removal of fuses;
  - b. Isolating an emergency stop (E-Stop), control circuit or a hand-off-auto (HOA) switch; or
  - c. Isolating an interlock.
- 16.1.15. Annual reviews of the LOTO program shall be completed by the Safety Personnel and forwarded to the VP Safety.

## 16.2. *Locks and Tags*

- 16.2.1. Locks shall be of a uniform type and consistent in color, size or shape.
- 16.2.2. Only one key shall be provided for each lock.
- 16.2.3. Tags shall always be affixed to locks.
- 16.2.4. Tags and tag attachments shall have a minimum breaking strength of fifty (50) pounds.
- 16.2.5. Locks and tags shall be securely affixed to equipment.
- 16.2.6. Tags shall have the following legible information at a minimum:
  - a. Company Name;
  - b. Employee Name,
  - c. Date; and
  - d. System Name.
- 16.2.7. Tags may contain additional information such as Person-In-Charge's name, phone numbers of Authorized Persons, start date, completion date or other identification as specified by Customer requirements.
- 16.2.8. When locks cannot be affixed to a system and a tag is the only means of isolation, the following "Tag Only Procedure" shall be implemented:
  - a. A supplemental physical safety measure equivalent to the placement of a lock shall be installed to prevent the release

of energy. This may be the removal of conductors or piping, removing conductors from the source (determinate), opening an additional disconnecting device or installing a blind.

- b. Every employee on the system shall be informed of the “Tag Only Procedure” and the reduced level of protection.

16.2.9. “Tag Only Procedures” require the visual verification of the tags and a verification of a zero-energy state prior to the start of work each day.

### *16.3. Electricians Lockout / Tagout Rules*

16.3.1. The Authorized Person or the Person-In-Charge shall always verify the system is Deenergized and that other personnel are not working on the system.

16.3.2. The Person-In-Charge shall be responsible for the system identification and ensuring isolation points are identified.

16.3.3. The Authorized Person and/or the Person-In-Charge shall notify all Affected Persons of the procedure.

16.3.4. Each Authorized Person working on the system shall apply their own lock and tag.

16.3.5. Each employee shall verify the effectiveness of the LOTO procedure and ensure all energy sources are Isolated and all energy is released. (Test and Try-out)

16.3.6. Each employee shall only remove their own lock and tag when:

- a. Their portion of the work is completed; and
- b. Exposed Energized parts are Isolated or covered; and
- c. The work area is inspected to ensure all tools, materials and equipment are removed from the work area.

16.3.7. The Person-In-Charge shall notify all Affected Persons of the completion of the work.

16.3.8. Personnel shall move to a safe distance prior to re-energizing the system.

16.3.9. Devices, locks and tags shall be removed by the Authorized Person and the system returned to service.

## 16.4. T&D Line Clearance

- 16.4.1. T&D Line Clearance Procedures shall be implemented for work performed on Transmission, Distribution or Substation equipment.
- 16.4.2. The Person-In-Charge shall be responsible for the line-clearance request and notification to the system operator or Customer representative.
- 16.4.3. T&D tagging requirements shall conform to Customer line-clearance requirements.
- 16.4.4. If system operators or Customer representatives are not available, the Person-In-Charge shall be responsible for a level of safety equal to a line clearance.
- 16.4.5. Switching devices shall be rendered inoperable while those devices are protecting employees or included in the boundary of the clearance.
- 16.4.6. Employees performing line-clearance operations shall be Qualified and Authorized Persons.

### **Line Clearance Procedure**

- 16.4.7. The Person-In-Charge shall comply with system operator requirements.
- 16.4.8. If system operator procedures are not available, the Person-In-Charge or designated employee shall implement this line-clearance procedure:
  - a. Initiate the line or section isolation request (clearance).
  - b. Verify that the isolation points have been physically opened and tagged per Customer line-clearance requirements.
  - c. Ensure personnel have signed on to the line clearance and are aware of the limitations of the clearance.
  - d. Ensure testing has been performed with approved voltage testing equipment to verify that the line is Deenergized.
  - e. Ensure PPG are installed.
- 16.4.9. Release of a clearance shall be completed per system operator requirements. The Person-In-Charge shall:
  - a. Notify all employees;
  - b. Ensure employees are clear of the system;
  - c. Ensure PPG are removed; and

- d. After Ground Sets are removed, the same individual who requested the clearance shall initiate the release of the clearance request.

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# Section 17 Commercial and Industrial C&I

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## 17.1. General

- 17.1.1. Commercial and Industrial work is defined as systems on the Customer side of the utility interface and shall be done in accordance with the National Electrical Code.
- 17.1.2. Only Qualified and Authorized Persons shall perform work on electrical systems.
- 17.1.3. Electrical work on systems exceeding 600 volts shall comply with the rules in Section 15, 16 or 17.
- 17.1.4. Electrical systems, parts or equipment operating at or above fifty (50) volts shall be guarded or covered.
- 17.1.5. Employees who may work on or near Energized circuits shall comply with the M.A.D. and the Energized work procedures. **(Reference Section 1.8.4 and 17.5)**
- 17.1.6. Employees shall wear appropriate PPE for the hazard.
  - a. Deenergized circuits: Minimum PPE requirements are hard hat, safety glasses, safety shoes and gloves.
  - b. Energized Circuits: Appropriate PPE as determined by the hazard analysis rules in Section 17.5.
- 17.1.7. Electrical equipment shall:
  - a. Have proper overcurrent protection.
  - b. Have proper Grounding and Bonding connections.
  - c. Be designed and approved for the specific use (e.g. damp or wet locations, explosion proof, proper amperage and voltage rating).
  - d. Have proper supports.
  - e. Comply with installation requirements provided in the National Electrical Code (NEC).
- 17.1.8. Cables and conductors shall have appropriate connectors for strain relief.
- 17.1.9. Cabinets, boxes, and fittings shall have every opening effectively closed.

17.1.10. Splices, taps, devices, switches, receptacles and connections shall be contained in a box with a cover.

## 17.2. Temporary Lighting

17.2.1. Temporary lighting circuits and lighting fixtures shall comply with the following:

- a. Installed in compliance with the National Electrical Code (NEC).
- b. Not be used for temporary power.
- c. Lamps shall be protected from accidental damage by suitable guards.
- d. Fixtures exceeding 6 pounds shall be supported.
- e. Cables and cords feeding lighting fixtures shall be adequately supported. Cable and cords shall be kept at least seven (7) feet above the floor.
- f. Circuits shall originate from overcurrent protective devices that do not supply temporary power.

17.2.2. Damaged or broken lamps shall be replaced.

17.2.3. Unused lighting sockets shall be properly protected.

17.2.4. Temporary lighting shall comply with the below chart:

**Table 17.2.4 Temporary Lighting Foot Candles**

Foot Candles	Area of Operation
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.
5	General construction area lighting.
5	Indoors, warehouses, corridors, hallways and exit ways.
5	Tunnels, shafts and general underground work areas. (Exception: minimum of 10-ft. candles are required at tunnel and shaft heading during drilling, mucking, and scaling. Approved cap lights shall be acceptable.)
10	General construction plant and shops (e.g. batch plants, screening plants, mechanical and electrical rooms, carpenter shops, rigging lofts and active store rooms, barracks, living quarters, locker or dressing rooms, mess halls, and indoor toilets and work rooms.)
30	First aid stations, infirmaries and offices.

## 17.3. *Temporary Power*

- 17.3.1. Disconnects, circuit breakers, load centers, switchboards, control panels and panel boards shall be legibly marked to identify the load or loads they supply.
- 17.3.2. Current-carrying feeder cables shall be routed away from egress paths or break areas, meeting areas or other personnel areas.
- 17.3.3. Temporary electrical equipment shall be properly covered, barricaded or protected.
- 17.3.4. Extension cords:
  - a. Shall be inspected prior to each use and when exposed to potential damage.
  - b. Shall be elevated above seven (7) feet where necessary.
  - c. Shall be three-wire round cords.
  - d. Shall not be placed in areas where water has accumulated.
  - e. Shall be designed for hard usage or extra-hard usage. (SO, S, SOW, SJO, SJTO)
  - f. Shall be repaired by Qualified Persons.
  - g. Repairs to electrical cords shall maintain the original characteristics of the cord.
  - h. Repair or replacement of cord caps shall have the appropriate ratings and not exceed the amperage rating of the cord
  - i. Cord caps shall be mated (matched).
  - j. Electrical tape is not permitted for repairs.
  - k. Shall be appropriately sized for the loads. (Twelve gauge (12AWG) is the recommended minimum size.)
  - l. Shall not be installed where equipment or vehicles travel over the cord.
- 17.3.5. Flat cords of any type are not permitted.
- 17.3.6. Ground Fault Circuit Interrupter (GFCI) protection is required:
  - a. For all one-hundred twenty (120)-volt single phase fifteen (15), twenty (20) and thirty (30)-ampere receptacle outlets that are not part of the permanent wiring of a building or structure.

- b. For all existing receptacles that are provided for temporary construction, remodeling, demolition, maintenance or repair activities.
- c. On portable generators exceeding five thousand watts (5kW).

*Guidance:*

*Systems operating at more than one-hundred twenty-five (125)-VAC or more than thirty (30)-Amps may be GFCI protected. If GFCI protection is not feasible, an Assured Equipment Grounding Conductor Program shall be implemented. (Reference Section 18.2.30)*

- 17.3.7. GFCI devices shall be tested at the following intervals:
  - a. Portable plug-in type devices: Each Use
  - b. Receptacle devices with push-to-test: Monthly
  - c. Circuit Breaker devices with push-to-test: Monthly
- 17.3.8. The Assured Equipment Grounding Conductor Program shall be implemented on cables or conductors not specified in the GFCI program in Section 17.3.6.
- 17.3.9. The Assured Grounding Program, when implemented, shall be documented and maintained by the Person-In-Charge or a Competent Person.
- 17.3.10. Grounding conductor continuity tests shall be performed:
  - a. Prior to first use;
  - b. Prior to return to service after repairs are made;
  - c. When there is evidence of damage; and
  - d. Every ninety (90) days.
- 17.3.11. Cables passing these tests shall be color-coded according to the below table:

Continued on next page.

**Table 17.3.11 Color Code for Assured Equipment Grounding Conductor Program**

Month	Tape Color		Month	Tape Color		Month	Tape Color		Month	Tape Color
Jan	White		Apr	Green		July	Red		Oct	Orange
Feb	White with Yellow		May	Green with Yellow		Aug	Red with Yellow		Nov	Orange with Yellow
Mar	White with Yellow and Blue		June	Green with Yellow and Blue		Sept	Red with Yellow and Blue		Dec	Orange with Yellow and Blue

17.3.12. Repairs shall be designated by a brown marking.

**17.4. Working Clearances**

17.4.1. Electrical equipment such as load centers, switchboards, control panels, panel boards, disconnects, motor controllers, etc., shall maintain the minimum clear working space identified below:

**Table 17.4.1 Working Clearances**

Nominal Voltage To Ground	Minimum Clear Distance For Conditions					
	Condition A <sup>1</sup>		Condition B <sup>1</sup>		Condition C <sup>1</sup>	
	Feet	Meter	Feet	Meter	Feet	Meter
0 to 150	3	0.91	3	0.91	3	0.91
151- 600	3	0.91	3½	1.07	4	1.22

- a. Conditions described above are identified as follows: (Note: Employee is between exposures described below.)
  - A1. Exposed live parts on one side and no live or Grounded parts on the opposite side of the working space; or exposed live parts on both sides effectively guarded by Insulating material.
  - B1. Exposed live parts on one side and Grounded parts on the opposite side.
  - C1. Exposed live parts on both sides of the work space (not guarded as described in Condition A1).

*Note: Work on electrical systems greater than 600 volts is covered in Sections 15, 16 and 17. Employees who work on systems at or above 600 volts shall be Qualified and Authorized for the work tasks.*

- 17.4.2. At least one entrance and egress path shall be kept clear at all times.
- 17.4.3. The minimum vertical clearance shall be seventy-eight (78) inches.

## *17.5. Energized Work*

- 17.5.1. Only Qualified and Authorized Persons shall perform Energized work.
- 17.5.2. Management shall develop, implement and maintain an Energized Electrical Safety Program.
- 17.5.3. Energized work permits shall be completed and approved prior to the start of any Energized work.
- 17.5.4. Work tasks performed on systems above 250 volts shall require two Qualified and Authorized Persons.
- 17.5.5. When the Energized Work Permit requires an observer, the observer shall know the location of the isolation device(s) and be trained in first aid and CPR.
- 17.5.6. PPE shall be selected based upon an exposure assessment or tables provided in NFPA-70E.
- 17.5.7. Prior to working on Energized circuits, the following shall be verified by each employee performing Energized work:
  - a. Removal of conductive clothing, jewelry, rings, watches, etc.;
  - b. Undergarment materials are cotton, wool or arc-rated per NFPA 70E;
  - c. Appropriate arc-rated clothing per NFPA 70E rated for the exposure shall be donned;
  - d. The arc-rated garments per NFPA 70E are the outer most clothing; and
  - e. Appropriate rubber insulating PPE rated for the anticipated voltage shall be donned.
- 17.5.8. Minimum Tool/Equipment requirements:
  - a. Fire extinguisher;

- b. Insulated tools; and
  - c. Appropriately rated voltage-testing equipment.
- 17.5.9. Apprentices may work on Energized circuits in compliance with Local area rules. Below are minimum requirements:
- a. 1<sup>st</sup> and 2<sup>nd</sup> year apprentices may not work on or near Energized circuits;
  - b. 3<sup>rd</sup> year apprentices may work on or near Energized circuits at the discretion of the Person-In-Charge AND with constant supervision by a Qualified Person. The Person-In-Charge shall ensure systems are less than 120 volts phase-to-ground; and
  - c. 4<sup>th</sup> year apprentices may work on or near Energized circuits at the discretion of the Person-In-Charge AND with constant supervision by a Qualified Person. The Person-In-Charge shall ensure systems are less than 250 volts phase-to-ground.
- 17.5.10. Energized work on systems above 600 volts shall comply with Sections 15, 16 or 17.

## *17.6. Storage Batteries*

- 17.6.1. Flames, sparks, torches and other high-heat devices shall be kept away from battery systems due to hydrogen gas release during battery charging.
- 17.6.2. Metallic tools and equipment shall not contact more than one battery terminal at a time. Long metallic objects shall be handled by two (2) employees.
- 17.6.3. Batteries shall not be opened or filled in areas exceeding 125° F. Temperature shall be reduced prior to opening.
- 17.6.4. Protect batteries during installation with Insulating barriers.
- 17.6.5. Live parts of battery strings are considered Energized equipment. Work on battery strings at or above fifty (50) volts shall comply with Section 17.5.
- 17.6.6. Appropriate eye-wash facilities shall be within twenty-five (25) feet of the battery area. Shower facilities may be required for lead-acid battery installations.

## *17.7. Floor and Wall Openings*

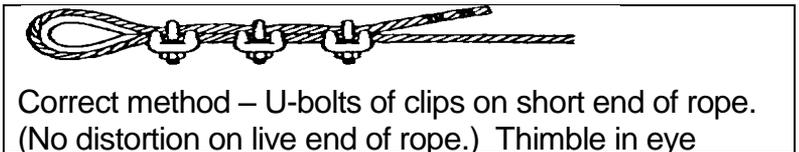
- 17.7.1. Covers, barricades and/or guardrails shall be placed to prevent:

- a. Employees from falling into or through floor or wall openings;
- b. Accidental contact with Energized parts; and
- c. Unauthorized personnel from entering work areas.

17.7.2. Floor covers shall be labeled “HOLE” or other appropriate marking to identify the potential hazard they are guarding.

## 17.8. *Guard Rail Systems*

17.8.1. Wire rope used for guard rail systems shall only be spliced as described below:



# Section 18 Traffic Signal

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## 18.1. *General*

- 18.1.1. Only Qualified and Authorized Persons shall perform work on traffic-control signal devices and street-lighting systems.
- 18.1.2. Approval to work over active traffic lanes shall require a Site-Specific Task Plan approved by the Management prior to beginning work.
- 18.1.3. All traffic shall be stopped while loads are hoisted, suspended or traveling over active traffic lanes, pedestrian walkways or other public areas.
- 18.1.4. Equipment, tag lines, signal arms, span wire, etc., shall be controlled and kept clear of traffic lanes. Traffic shall be stopped until the device is clear of the traffic lanes.
- 18.1.5. Work areas in public locations shall be adequately barricaded and appropriate signage shall be displayed.
- 18.1.6. Disabled traffic-control devices (lack of power, replacement, or partial operation) shall have an alternative means of traffic control (Traffic Control Personnel, Flaggers, or alternate devices).
- 18.1.7. Employees shall not work below other employees unless the task requires employees to be below other employees; when this is required, the following shall be completed:
  - a. Employees shall communicate the work plan, and
  - b. Communication methods to warn employees of falling objects shall be identified and implemented.

## 18.2. *Pole, Signage and Mast Arm Installation*

- 18.2.1. Poles shall be inspected prior to the installation of a mast arm or other signaling equipment to ensure it is free of damage or corrosion.
- 18.2.2. Rigging shall be positioned so that damage will not occur to signals, signage, or other equipment.
- 18.2.3. Tension on the mast arms shall not be released until all bolts are firmly secured.
- 18.2.4. Rigging shall be secured on steel poles prior to hoisting.
- 18.2.5. Unauthorized personnel shall be positioned at a safe distance.

- 18.2.6. Lift plans shall be developed and communicated to all affected employees for lifts over active traffic lanes, pedestrian walkways or other public areas.

### *18.3. Load Transport*

- 18.3.1. Pole and mast-arm transport shall conform to state and local requirements.
- 18.3.2. Flagging is required when the vehicle or load exceeds the maximum vehicle dimensions specified by federal, state and local regulations.
- 18.3.3. Loads on trailers shall be properly secured according to federal, state and local rules.
- 18.3.4. Loads shall be visually inspected to ensure they are secure prior to traveling.

# Section 19    Communications / Non-Ionizing Radiation

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Non-Ionizing Radiation (NIR) is a term used to describe various low-level radiation such as microwave radiation, ground-penetrating radar, microwave communications, transmitting antennae, microwave radiation, electromagnetic radiation, and visible light.

## *19.1.    NIR, Microwave or Radio Frequency (RF)*

- 19.1.1. Only Qualified and Authorized Persons shall work near or around NIR equipment.
- 19.1.2. Employees shall be provided appropriate PPE for work locations with exposure to RF burns.
- 19.1.3. Employees shall receive training prior to working on or near high-level NIR systems.
- 19.1.4. Employees shall not work on or near ionizing radiation equipment unless the equipment is Isolated through a lockout/tagout procedure. Examples are X-ray equipment, gamma-ray equipment, radio-luminescence equipment, and high-frequency ultraviolet radiation.

## *19.2.    Laser Protection*

- 19.2.1. Only Qualified and Authorized Persons shall work with laser systems.
- 19.2.2. Laser equipment shall be labeled with the type of laser and maximum output.
- 19.2.3. Employees who work in, around or near laser beams exceeding 5 mW shall be provided with the appropriate PPE (laser safety goggles) specific to the wavelength and optical density of the laser equipment.
- 19.2.4. Class 1, 2, and 3 equipment (as identified on the equipment) shall be operated per manufacturer recommendations.
- 19.2.5. Qualified Persons operating laser equipment shall maintain proof of qualification in their possession.
- 19.2.6. Areas with active lasers shall have appropriate signage.
- 19.2.7. Class 4 lasers shall be approved by the Safety Department.

### *19.3. Fiber Optics*

- 19.3.1. Only Qualified and Authorized Persons shall work with fiber optic systems.
- 19.3.2. Employees who work with fiber optic cables shall be provided the appropriate PPE, (long sleeve shirts and laser safety goggles).
- 19.3.3. Inspection of fiber optic cables shall only be performed while the system is dark or protective goggles are donned.

# Section 20 Tree-Trimming Operations

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## 20.1. *General*

- 20.1.1. Only Qualified and Authorized Persons can perform tree-trimming operations.
- 20.1.2. Tools, equipment and PPE shall be inspected prior to use.
- 20.1.3. Additional PPE precautions:
  - a. Goggles and face shields shall be worn when performing tree-trimming operations, including operation of chain saws or other power-cutting equipment
  - b. Leg protectors shall be worn when operating a chain saw on the ground or when outside of the bucket.
  - c. Hearing protectors are mandatory when operating fuel-powered equipment.
- 20.1.4. Employees shall be trained in bucket truck rescue and appropriate rescue procedures shall be identified prior to work.
- 20.1.5. Tree limbs, trees, branches and other vegetation shall be removed in such a manner that materials when cut will not contact any Energized or potentially Energized parts.
- 20.1.6. Hand lines or hoisting equipment shall be employed to assist in the removal of branches, limbs or other vegetation.

## 20.2. *Working Near Energized Parts*

- 20.2.1. Inspections shall be performed by the Person-In-Charge or a Qualified Person to determine the potential Energized electrical hazards prior to the start of work.
- 20.2.2. Non-electrically Qualified Persons shall maintain a minimum clearance of ten (10) feet from Energized conductors and equipment rated at fifty (50) kV phase-to-phase or less; the minimum clearance for conductors rated over fifty (50) kV phase-to-phase shall be ten (10) feet + four (4) inches for each ten (10) kV over fifty (50) kV.
- 20.2.3. Electrically Qualified Persons may approach closer than ten (10) feet to Energized parts, and the Person-In-Charge shall:

- a. Only assign these duties to Qualified Persons.
  - b. Ensure a Qualified spotter is present at all times.
  - c. Ensure the Qualified spotter meets the requirements identified in ET&D Partnership Best Practices; and
  - d. The Qualified spotter must prevent employees from encroaching upon the M.A.D.
- 20.2.4. Employees shall implement every necessary precaution to prevent trees, tree limbs and branches from contacting Energized parts.
- 20.2.5. Personnel on the ground shall not be in contact with the aerial device when the boom is elevated near Energized conductors or equipment.

### *20.3. Specialized Equipment*

- 20.3.1. Aerial devices shall maintain appropriate clearances:
- a. Insulated aerial equipment shall comply with M.A.D. in Table 1.8.1.
  - b. Uninsulated aerial equipment shall comply with Section 20.2.2.

### *20.4. Climbing and Fall Protection*

- 20.4.1. Employees are not permitted to climb trees. All work shall be performed from approved aerial devices.

## Section 21 Gas Operations

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Natural gas is largely a mixture of gaseous hydrocarbons occurring naturally in the earth. Wells are drilled and the gas is extracted from the well to be used as a fuel. Natural gas consists of 75% methane, 15% nitrogen, 5% ethane and 5% miscellaneous hydrocarbons. Natural gas is lighter than air and can easily drift or be carried by air currents. Natural gas has the following characteristics:

- a. Combustion limits:
  - i. Natural gas in its raw state is not explosive, but when mixed with air it becomes explosive. Gas is combustible and explosive in mixtures of approximately 5% to 15% concentration of gas in air.
- b. Gas hazards:
  - i. Fire – due to burning gas;
  - ii. Explosion—due to igniting gas when mixed in air;
  - iii. Asphyxiation or suffocation—Due to an excess of gas or lack of oxygen;
  - iv. Poisoning—due to fumes containing monoxide.
- c. Toxicity:
  - i. Natural gas, even odorized gas, is not poisonous. However, it contains 0% oxygen and if present in sufficient quantities to displace the air, can cause suffocation due to lack of oxygen.
- d. Odorant:
  - i. Natural gas is odorless and colorless;
  - ii. Odorant is vaporized into the gas so that a person with a normal sense of smell can detect a natural gas leak before the concentration exceeds 1% gas in air by volume.
  - iii. Odorant is flammable.
  - iv. Odorant is toxic in heavy concentrations; however in the small amounts used to odorize gas, it is not considered toxic.
- e. Pressure:
  - i. Natural gas is pressurized in piping systems. The pressure is usually categorized as low, intermediate or high.

## 21.1. General

- 21.1.1. Only Qualified and Authorized Persons are permitted to work on gas operator property.
- 21.1.2. Personnel shall be required to comply with operator requirements identified in the Pipeline and Hazardous Materials Safety Administration (PHMSA); a division of the Department of Transportation (DOT).
- 21.1.3. Personnel shall comply with operator-specific requirements.
- 21.1.4. Drug and Alcohol Testing for Gas Operations shall comply with 49 CFR Part 199. Also reference 40 CFR Part 40 (DOT).
- 21.1.5. Effective controls and safe work practices shall be employed to protect employees from the following hazards:
  - a. Fire;
  - b. Explosion, when natural gas mixes with air it may become explosive;
  - c. Asphyxiation or suffocation, due to oxygen displacement by gas;
  - d. Poisoning, due to fumes and vapors lacking oxygen content.
  - e. Odorant, flammable and toxic.
- 21.1.6. Appropriate PPE shall be identified and readily available at the work site. Minimum PPE requirements are identified in Section 2.1.10. Specialized PPE may be required when performing Operator Qualification (OQ) qualified tasks, this PPE may include any or all of the following; FR shirt, FR coveralls or SCBA.
- 21.1.7. Prior to working on any facility, an inspection shall be performed to ensure the system is safe to work on, including but not limited to, pressure is reduced to acceptable levels, ignition sources have been isolated, and the public is maintained at safe distances. Testing of the area is required if the area is enclosed (e.g., Confined Space, excavation, etc.)
- 21.1.8. Leak detectors shall be approved for gas operations. Leak detectors shall be calibrated and tested at manufacturer or Customer-required intervals.

- 21.1.9. Leak detectors shall only be operated by Qualified and Authorized Persons.
- 21.1.10. Removal of any device, plug, meter or other item requires blanking off the opening.
- 21.1.11. Tools utilized on live gas lines shall be rated for the work task. (e.g., pneumatic powered tools, etc.).
- 21.1.12. Tools, meters, testers and equipment shall be inspected prior to use.
- 21.1.13. Entry into underground vaults or Confined Spaces shall be in compliance with Section 8 of this manual.

## 21.2. *Pipe*

- 21.2.1. Materials shall be inspected prior to installation.
- 21.2.2. Installations shall minimize the strain placed upon fittings, meters and piping.
- 21.2.3. Be cautious on old systems; the piping can be brittle and components may break or snap off.
- 21.2.4. Pipe threading and cutting shall be performed with leather gloves in addition to standard PPE. Die handles shall be blocked or secured to prevent movement if possible.
- 21.2.5. Air shall be purged from new or repaired lines.
- 21.2.6. Piping joints and connections shall be leak-tested using a pressure test or leak-detection test.
- 21.2.7. Static electricity sparking is present during any line breaking, tapping, or other entry into piping. Appropriate controls shall be implemented to reduce static charges prior to work operations. If the work breaks the continuity of piping, suitable Bonding jumpers shall be installed.
- 21.2.8. Employees shall be alert to the hazard of Energized piping due to improper Grounding of electrical circuits or faulty electrical circuits.
- 21.2.9. Employees shall notify the Person-In-Charge, operator or Customer of any abnormal operating condition prior to performing work.
- 21.2.10. Damaged or corroded piping shall have the damaged or corroded portion replaced or rendered safe.

## 21.3. *Cutting / Tying in Lines*

- 21.3.1. When potential exposure to escaping gas exists (bagging, tapping, exposing leaks or broken pipes, purging lines, or using pressure-control equipment) or when employees perform 'tie-ins' (activities such as unplugging, uncapping, uncoupling, or opening a live main), the Person-In-Charge shall ensure:
- a. A thorough investigation of the distribution area, anticipated pressures, feed direction, bypass requirements and Customer notification is completed.
  - b. Open flames and sparks are eliminated.
  - c. The area is barricaded and only Authorized Persons may enter the work area.
  - d. A spotter is stationed to "stand by" with an appropriate fire extinguisher. This employee shall remain outside the danger area watching for hazards and ready to assist the employees in case of an emergency. The work area shall only be entered to extinguish a fire or assist employees out of the area, not to assist in performing the work task. Sources of ignition, personnel and equipment shall not be downwind of the exposure.
  - e. Flashback protection is implemented during cutting operations.
  - f. Work operations are performed per gas operator procedures.

## 21.4. *Purging and Cleaning*

- 21.4.1. When all connections to live lines are completed and prior to new lines or repaired lines being placed into service, the new or repaired line shall be purged of air and inert gas.
- 21.4.2. Lines shall not be purged inside a building, Confined Space or other enclosure.
- 21.4.3. If blowing lines with natural gas, a cushion of inert gases shall be used. Such blowing/purging of lines shall only be done under close supervision and with appropriate protection for employees and the public. Notification to the operator, local police and fire services may be required.
- a. Where blow risers are installed with compression couplings, such couplings shall be Bonded in accordance

with gas operator requirements and the riser is adequately braced to prevent whipping or slippage during the blow.

## 21.5. *Welding*

- 21.5.1. Employees performing welding operations shall be constantly alert to the hazards of escaping gas.
- 21.5.2. Gas fillet welding of two (2) inch and smaller fittings to live intermediate pressure mains is permitted with the below requirements:
  - a. The arc-welding process is not immediately available.
  - b. Approval is obtained from the gas operator.
  - c. Only Qualified and Authorized Persons shall perform the welding.
  - d. Line pressure can be reduced where the potential of a blowout is minimal.
- 21.5.3. Corroded and old piping shall be thoroughly inspected to ensure the wall thickness can withstand the welding operation.
- 21.5.4. When welding near a bagged line, sparks or hot metal shall be prevented from striking the bag.
- 21.5.5. Flashback precautions shall be implemented for cutting or welding.
- 21.5.6. Weld fumes shall be avoided, or proper respiratory protection shall be used. **(Reference Section 2.6)**
- 21.5.7. CadWeld (Thermo welding) equipment shall comply with the following:
  - a. Employees shall be trained in the proper use;
  - b. The thermoweld charge shall only be ignited by the means of a flint gun;
  - c. Gloves, eye protection and a face shield shall be worn when igniting the thermoweld charge;
  - d. The body, feet, clothing, other personnel, combustible materials/ liquids and flammables are moved away from the area in case molten metal runs out of the mold;
  - e. Never attempt to thermoweld wires to magnesium anodes; doing so might cause an explosion;

- f. Old pipe shall be inspected carefully for pitting to ensure the thermoweld can be made without penetrating the pipe; and
- g. Thermoweld materials shall be stored in designated and appropriate locations away from moisture and heat.

## 21.6. *High-Pressure Lines*

- 21.6.1. Only Qualified and Authorized Persons can work on high-pressure gas lines. These lines are typically located at gas compressor stations, wellhead installations or gas transmission pipelines.
- 21.6.2. Fittings, valves, flexible tubing, piping and flanges shall be inspected prior to use or installation.
- 21.6.3. Never place your body near any part of the stream or near pressure-relief devices.
- 21.6.4. “Hot-stabbing” fittings into pipelines are only permitted during emergency situations. Appropriate PPE shall be available and donned prior to any “hot-stabbing” operations.
- 21.6.5. Valves, relief vents, tubing, fittings, piping, blow-down lines, and blow-down valves shall be adequately supported to withstand the anticipated pressure and forces.
- 21.6.6. Valves shall be opened at a rate that will not overload or overpressure the system.
- 21.6.7. Flexible lines shall be secured to prevent whipping.
- 21.6.8. Components shall be rated for the maximum system pressure.
- 21.6.9. Storage of high-pressure fittings shall be separated from low pressure and other utility parts.
- 21.6.10. High-pressure hoses exceeding one-half (½) inch diameter shall be hydrostatic tested annually and tagged with the maximum operating pressure (½ of the test pressure).
- 21.6.11. High-pressure hoses used for hydrocarbons or oils shall not be used on oxygen systems. Markings or tape shall identify hoses to be used on oxygen systems.
- 21.6.12. High-pressure sample cylinders shall:
  - a. Be rated at or greater than the system pressure.

- b. Be hydrostatic and elongation tested every five (5) years. Each cylinder will be tagged with the pressure rating and date of last test.
  - c. Contain burst plugs as required.
  - d. For further detail, refer to compressed-gas cylinders in Section 6.
- 21.6.13. Metal tubing and fittings are recommended for most high-pressure systems. The following rules are provided for compliance.
- a. Appropriate tools and cutting equipment shall be used on metal tubing.
  - b. Do not use dull cutters, which harden the tubing and make it brittle.
  - c. Use tubing benders for all tubing bends.
  - d. Do not stretch tubing, force tubing or install tubing in a bind.
  - e. Do not interchange ferrules, nuts, or bodies on different types of fittings.
  - f. Always check connections by removing the nut and inspecting the alignment, the threads, ferrule or flare. Reassemble, and then check for leaks.
  - g. Installation of long lengths of tubing requires allowance for expansion and contraction and proper support to prevent sagging, vibration, and fitting separation (pull-out from fitting).
- 21.6.14. If plastic materials such as pressure bowls and plastic tubing are used on high-pressure systems. The following rules shall apply:
- a. Plastic materials shall not be pressurized greater than their respective rating;
  - b. Plastic materials shall be inspected visually to ensure there are not any cracks, leaks or deformities and to ensure compatibility; and
  - c. Appropriate tools and cutting equipment shall be used.

## 21.7. *Damage to Underground Facilities*

- 21.7.1. If facilities become damaged, contact the operator immediately.

- 21.7.2. If gas is escaping:
- a. Evacuate non-essential personnel from the area;
  - b. Eliminate sources of ignition;
  - c. Secure the damaged area;
  - d. Contact the operator; and
  - e. If buildings are in the area, warn and notify the occupants downwind.
- 21.7.3. If properly Qualified and Authorized, and if safe to do so, secure the line to stop the flow. PPE such as a fire suit, environmental testing equipment and respiratory equipment may be required.
- 21.7.4. Employees shall not work alone during emergency work tasks.
- 21.7.5. Leak detectors and piping locators used during gas leaks shall be approved for the exposure.

# Section 22 Garage

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## 22.1. General

- 22.1.1. Only Qualified and Authorized Persons shall be permitted to:
  - a. Repair or maintain equipment or vehicles;
  - b. Perform welding and cutting operations;
  - c. Perform dielectric testing of vehicle insulation; and
  - d. Perform DOT-mandated inspections.
- 22.1.2. Internal-combustion engines shall have adequate ventilation available or an extended exhaust hose to prevent accumulation of exhaust gases in garages.
- 22.1.3. Cutting, welding and grinding shall be done in well-ventilated areas and in compliance with rules in Section 9.
- 22.1.4. Ladder usage shall comply with Section 1.11.
- 22.1.5. Eye-wash stations shall be readily available in garage areas.
- 22.1.6. Equipment with moving parts, rotating parts, power transmission equipment, belts, chains, and other such devices shall have all exposures adequately guarded.
- 22.1.7. Ensure the atmosphere is free of hazards prior to using any electric tools, starting a vehicle or other spark-producing work activities.
- 22.1.8. Power tools shall have the appropriate tool guards installed and in proper working condition.
- 22.1.9. Employees who use, transport, dispose of or disturb chemicals or hazardous materials shall be trained in the proper use, disposal, storage and PPE requirements for the substance.
- 22.1.10. Liquids, chemicals or hazardous materials shall be kept in the original container.
- 22.1.11. Transfer of chemicals or materials is permitted for limited quantities using a properly labeled container. Employees who transfer chemicals or hazardous materials shall don the appropriate PPE. **(Reference Section 6.7)**

- 22.1.12. Transfer of liquids or hazardous materials shall only be performed in designated areas. Transfer of liquids includes draining of fluids from vehicles or tanks.
- 22.1.13. Containers shall be labeled.
- 22.1.14. Spills or leaks shall be cleaned up and disposed of properly.
- 22.1.15. Ensure that secondary containment is provided for bulk liquids, oils, or fuels when required.

## 22.2. *Flammable and Combustible Liquids*

- 22.2.1. Section 6 contains applicable rules for flammable and combustible liquids.
- 22.2.2. Flammable and Combustible Liquids shall be stored in approved and properly labeled safety cans.
- 22.2.3. Approved safety cans and manufacturer-supplied containers shall be stored in an approved cabinet.
- 22.2.4. Enclosed storage areas shall be adequately ventilated.
- 22.2.5. Rags and other combustible items shall be disposed of in approved containers.
- 22.2.6. Compressed gas cylinders shall be stored properly, secured at all times, and used properly. (Reference Section 6)

### **Spray Painting**

- 22.2.7. Indoor spray painting (spray cans only) shall be done in well-ventilated locations.
- 22.2.8. Painting may require the use of respiratory equipment. Contact the Safety Personnel.

## 22.3. *Equipment*

- 22.3.1. Equipment Rules are provided in Section 5.
- 22.3.2. Equipment shall be inspected prior to use.
- 22.3.3. Appropriate PPE shall be donned when operating equipment.
- 22.3.4. Face shields are required for bench grinders, hand grinders and parts washing, and where required by a hazard analysis.
- 22.3.5. Equipment requiring documented inspections shall be performed at the specified interval.

22.3.6. Monthly documented inspection:

- a. Fire extinguishers; and
- b. Eye-wash stations.

22.3.7. Annual documented inspection:

- a. Cranes;
- b. Rigging;
- c. Hazardous liquid storage tanks; and
- d. Secondary containment.

### **Bridge / Overhead Cranes and Hoists**

22.3.8. Only Qualified and Authorized Persons shall operate cranes and hoists.

22.3.9. Hoists, cranes and associated rigging shall not be loaded beyond their rated capacities.

22.3.10. Cranes, hoists and rigging shall have the capacities legibly marked.

22.3.11. Operating controls shall be legibly marked. Pendant controls shall have legible operating controls. Chain hoists do not need legible controls unless they are remotely operated.

22.3.12. Annual inspection documentation shall be maintained at the respective location.

22.3.13. Loads shall only be moved when visible by the operator. If loads cannot be observed, a Qualified and Certified signal person shall provide the proper signals to the operator.

22.3.14. Additional crane rules are provided in Section 5.9.

### **Parts Washers**

22.3.15. Parts-washing equipment equipped with a fusible link (fire link) shall be properly maintained and working.

22.3.16. Cleaning fluid disposal shall be in compliance with local area regulations (company-approved 3<sup>rd</sup> party reclamation vendor).

22.3.17. Parts washers containing fluids that may burn, irritate or otherwise harm the skin require an emergency shower AND eye-wash station.

22.3.18. Employees shall wear appropriate PPE for splash protection when required.

22.3.19. Cleaned parts shall drain before being removed.

### **Pressure Washers**

22.3.20. Inspect hoses prior to use for cuts, frays, leaky fittings, worn coverings and other damage.

22.3.21. Always maintain a firm grip on the gun jet (wand) when starting the machine.

22.3.22. Shut off the machine when leaving the area or when finished with the task.

22.3.23. Proper PPE shall be worn while equipment is in operation.

22.3.24. Always point the nozzle away from yourself and other personnel. The operator shall stop washing when personnel approach.

### **Hydraulic Systems**

22.3.25. Only Qualified Persons are permitted to repair or maintain hydraulic systems.

22.3.26. Tool-circuit systems are available in two types; “open systems” and “closed systems.” Ensure the tools are matched to the system.

22.3.27. Tool quick disconnects shall not be altered.

22.3.28. Ensure hoses, tools, couplers and fittings are rated for the pump pressure. Do not interchange parts with different p.s.i. ratings.

22.3.29. NEVER use any part of your body to stop or locate a hydraulic fluid leak.

### **Jacks and Jack Stands**

22.3.30. Jacks and jack stands shall not be loaded beyond their rated capacity.

22.3.31. Jacks shall be centered under the load and appropriate support shall be placed under the load.

22.3.32. Jacks and jack stands shall be inspected prior to each use and when subjected to shock or impact.

22.3.33. Jacks and jack stands shall be supported when placed on uneven or soft ground.

22.3.34. Blocking or jack stands shall be installed when employees work under a load.

22.3.35. Jacks used in freezing weather shall have appropriate fluids.

## 22.4. *Vehicle Isolation (Disabling)*

22.4.1. Only Qualified and Authorized Persons shall isolate or disable a vehicle or equipment for maintenance or repair.

22.4.2. Prior to jacking, vehicle movement shall be disabled by utilizing wheel chocks, blocks, hoists and other means to prevent movement.

22.4.3. Prior to any repair work being performed:

- a. Wheel chocks shall be positioned;
- b. Keys shall be removed from ignitions;
- c. In field work areas, Out Of Service tags shall be installed at the operating controls; and
- d. Vehicle shall be inspected for anticipated movement prior to starting work.

22.4.4. Service, maintenance and repair shall be performed in non-hazardous areas. Equipment in “danger zones” shall not be trouble-shot, maintained or repaired unless the unit has broken down and a hazard analysis has been performed.

## 22.5. *Roadside Service*

22.5.1. Roadside service shall not be performed near or in traffic lanes whenever possible.

22.5.2. Personnel shall comply with traffic control regulations.

22.5.3. Road side service shall be limited to basic repairs. Repairs requiring extensive work shall require the vehicle or equipment to be transported to an area away from traffic and roadside hazards.

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# Section 23 Mine Safety & Health Administration (MSHA)

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## 23.1. General

- 23.1.1. Only Qualified and Authorized Persons shall work on mine property.
- 23.1.2. Employees shall comply with all rules in this manual, MSHA rules and the mine (Customer) property rules.
- 23.1.3. Mine safety standards are available from the Safety Department. Mine safety standards are published as follows:
  - a. Training; 30 CFR Parts 46, 47, and 48.
  - b. Notification, investigation and reporting; 30 CFR Part 50.
  - c. Metal and Non-Metal Safety Regulations; 30 CFR Parts 56, 57, and 58.
  - d. Noise exposure; 30 CFR Part 62.
  - e. Coal mining; 30 CFR Parts 70, 71, 72, 73, 74, 75, 77, and 80.
- 23.1.4. All employees working on mine property shall carry Form #5000-23 "Certificate of Training" at all times. This form is the employee training record of specific task training and equipment certification. All types of climbing (pole, tower, structure and building) are a type of task training.
- 23.1.5. Personnel working on mine property for fewer than five (5) days per year require eight (8) hours of training.
- 23.1.6. Personnel working on mine property more than five (5) days per year require twenty-four (24) hours of training.
- 23.1.7. Personnel working in underground mines require forty (40) hours of training.
- 23.1.8. Personnel are required to complete an eight (8) hour refresher annually prior to expiration date.
- 23.1.9. Coal mines require specific licensure for all electrical work. Refer to local area requirements.
- 23.1.10. All other site-specific safety and health policies shall refer to the applicable rules contained in that section of this manual or the site-specific operator rules (whichever is more stringent).

- 23.1.11. MSHA requires frequent and regular inspection of the work area.
  - a. Deficiencies shall be immediately identified and corrected.
  - b. Deficiencies beyond the control of the company shall be reported and documented to the operator.
- 23.1.12. All training plans shall be approved by the MSHA and revised as required for Customer or MSHA requirements.
- 23.1.13. All employees on mine sites shall be trained under the guidelines of an MSHA-approved training plan. The training plan shall require site-specific training to be provided by the mine operator.

## 23.2. *Jurisdiction*

- 23.2.1. MSHA governs the mining areas above and below ground including the transport of mined materials on mine property. Coal mines, precious metal mines, rock quarries and gravel pits are examples. OSHA may be responsible for plant production areas such as a smelter, acid plant, or production area.
- 23.2.2. Management shall report all MSHA production hours on a quarterly interval per MSHA requirements.

## 23.3. *Accidents and Accident Reporting*

- 23.3.1. Accidents on MSHA property are reported to MSHA ONLY. Use the proper MSHA forms (#7000-1) and reporting procedures obtained from the Safety Department.
- 23.3.2. The Person-In-Charge shall immediately report all Accidents to the Management and the mine operator.
- 23.3.3. Management shall report to MSHA [(800) 746-1553] any of the following incidents within fifteen (15) minutes of the occurrence:
  - a. A death;
  - b. An injury which has reasonable potential to cause death;
  - c. An entrapment of an employee for more than thirty (30) minutes;
  - d. An unplanned:
    - i. Inundation of a liquid or gas;
    - ii. Ignition or explosion of dust, gas, explosive or a blasting agent;

- iii. Roof fall in active areas or roof fall that impairs access or ventilation;
- iv. Fire not extinguished within ten (10) minutes (underground);
- v. Fire not extinguished within thirty (30) minutes (surface areas);
- vi. Coal or rock outburst that disrupts regular mine activity and results in withdrawal of miners for more than one hour;
- vii. An unstable condition which requires emergency action to prevent failure, or which causes miners to evacuate an area; or
- viii. Any serious injury.

**Note: Accidents on MSHA Property are NOT reported on the OSHA 300 log.**

## 23.4. *Evacuation, Escape and Rescue*

- 23.4.1. The Person-In-Charge shall establish a site-specific escape and evacuation plan for each work site that is compatible with the mine property rules.
- 23.4.2. Every Person-In-Charge shall have first aid and CPR training on an annual interval.
- 23.4.3. The Person-In-Charge shall ensure all employees comprehend the rescue plans, evacuation routes and escape passage locations.

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# Section 24 Industrial Hygiene

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## 24.1. General

24.1.1. If employees encounter or expect to encounter any of the below-listed Hazardous Substances, the employee shall notify the Person-In-Charge:

- a. Arsenic;
- b. Asbestos;
- c. Acids;
- d. Benzene;
- e. Beryllium
- f. Cadmium;
- g. Caustics;
- h. Corrosives;
- i. Hexavalent Chromium;
- j. Hydrogen Sulfide;
- k. Lead;
- l. Molybdenum;
- m. Nickel;
- n. PCBs;
- o. Silica;
- p. Sulfur Dioxide;
- q. Chemical processes with potentially harmful health effects due to employee exposure;
- r. High concentrations of fugitive emissions / fumes / dust (particulates not otherwise specified--PNOS) generated during work operations or being performed indoors. (High concentrations are defined as the inability to visually recognize objects less than 10 feet away when looking straight ahead); or
- s. Biological hazards such as mold, mildew, viruses, poisonous plant or toxins that can affect human health.

24.1.2. Management or the Person-In-Charge shall notify the Safety Personnel of the presence of a Hazardous Substance.

24.1.3. The Safety Personnel shall utilize the necessary resources to develop and implement a Site-Specific Task Plan which shall include at a minimum:

- a. Substance identification, evaluation, testing, PPE and exposure controls;
  - b. The protective measures to manage, control or eliminate the Hazardous Substances; and
  - c. Periodic inspections and audits of the identified control measures.
- 24.1.4. Management and Safety shall notify employees of the approved protective measures.
- 24.1.5. Chemical product hazards shall be evaluated before use by employees.
- a. Safety shall be contacted if a chemical has a National Fire Protection Association (NFPA) or Hazardous Material Identification System (HMIS) health rating (blue section) of 3 or 4.
  - b. Chemicals with a high health hazard (NFPA or HMIS rating of 3 or 4), if possible, should be substituted with another chemical product or eliminated from use.
  - c. High health hazard chemicals shall have engineering controls such as ventilation instituted when appropriate (indoors).
- 24.1.6. Indoor exposure controls shall be put in place for employees working indoors where sanding or cutting of drywall and joint compound to prevent exposure to high concentrations of dusts and, in some cases, respirable silica.
- 24.1.7. Physical hazards in the form of noise, heat, non-ionizing radiation (e.g., welding, microwaves, radio frequency, etc), shall be evaluated by the Safety Personnel and then proper controls instituted.
- a. Employees working in hot environments where heat stress is a concern shall take appropriate measures (consume fluids, take breaks, etc) to prevent heat exhaustion, heat stroke and severe injury.
  - b. The Safety Personnel shall be contacted before any work occurs on or near any live or energized microwave and/or radio frequency sources.
  - c. Welding fumes shall be controlled through direct ventilation or general dilution ventilation.

- 24.1.8. If employees are determined to be overexposed to chemical and physical hazards, the following hierarchy of controls shall be followed:
- a. Elimination of the hazard.
  - b. Substitute a less hazardous or non-hazardous chemical.
  - c. Engineering controls such as ventilation.
  - d. Administrative and work practice controls (e.g., job rotation, limit the amount of time in the work environment, etc.).
  - e. Personal Protective Equipment (PPE).
- 24.1.9. Sampling plans shall be developed to determine the employees' exposure level in a work environment where exposures may exceed established exposure limits.
- 24.1.10. Employees shall be monitored according to the sampling plan to determine their quantitative exposures to harmful agents.
- 24.1.11. Personal exposure monitoring results shall be provided to each employee in the work area.
- 24.1.12. Personal monitoring results are medical records and shall be kept on file for the duration of employment + 30 years.
- 24.1.13. Employees may access their personal medical and exposure records through a request to Human Resources or the Safety Department.

## 24.2. *Hazard Communication*

- 24.2.1. Management shall maintain a list of hazardous chemicals known to be present in the workplace. Each chemical shall have a Safety Data Sheet (SDS) readily accessible in the workplace.
- 24.2.2. Employees shall be trained prior to use and be knowledgeable of the health and safety hazards associated with use or exposure to Hazardous Substances in their workplace.
- 24.2.3. Employees shall be provided with the location of the SDS and the methods to access the SDS.
- 24.2.4. Containers of hazardous materials shall be labeled with the type of material.
- 24.2.5. Labeling shall be easily identifiable and identified by the common trade name of the substance. Labeling options are the trade name, the NFPA diamond or the HMIS label.

- 24.2.6. Employees shall use the proper PPE for the type of Hazardous Substance.
- 24.2.7. All transfer containers, secondary containers and one-days use containers shall be appropriately labeled.
- 24.2.8. SDS shall be obtained, categorized and filed for quick reference at each work site.
- 24.2.9. SDS shall be readily available to all employees upon request. SDS can be retrieved from the following:

[www.3eonline.com](http://www.3eonline.com) 1 (800) 451-8346

### 24.3. *Training*

- 24.3.1. Management shall ensure that employees receive training prior to exposure to Hazardous Substances in the environment.
- 24.3.2. Substances that require training are the following:
  - a. Chemicals with an OSHA-specific standard (lead, asbestos, cadmium, Hexavalent chromium, benzene, etc.)
  - b. Chemicals with a high health-hazard rating of 3 or 4.
  - c. Substances identified as carcinogens by federal or state regulation.
  - d. Substances identified as a biological contaminant, (tuberculosis, bloodborne pathogens, etc.)
- 24.3.3. Training shall be documented on Form # 40.0033.

# Section 25 Sub-Contractor Safety Requirements

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## 25.1. *General*

- 25.1.1. Subcontractors working for the Company are responsible for providing and overseeing safety programs that comply with applicable statutes, regulations, codes, ordinances, rules, and project requirements dealing with or related to the safety of persons and/or property as such pertain to the subcontractor's work. Subcontractors shall at all times remain in control and responsible for their own safety compliance.
- 25.1.2. Management shall ensure subcontractors meet the Guidelines for Subcontractor Safety Performance Qualification.
- 25.1.3. Subcontractors shall be prequalified and approved by the Management.
- 25.1.4. Subcontractors shall submit their health and safety plan for review by Management. Such review shall be for verification only.
- 25.1.5. The Person-In-Charge shall periodically observe the work tasks of subcontractors.
  - a. When the Person-In-Charge identifies an unsafe work practice, unsafe work activity or other non-compliant activity, the Person-In-Charge shall stop the activities and notify the subcontractor's Management for corrective action.
    - i. The Person-In-Charge shall also document and notify company Management.
    - ii. Management shall verify that the identified unsafe or non-compliant activities have been corrected.

## 25.2. *Qualified and Authorized Persons*

- 25.2.1. Only Qualified and Authorized Persons shall be permitted to work on company work sites.
- 25.2.2. Management and the Person-In-Charge shall verify that the Subcontractor has Qualified Persons for the tasks to be performed.

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# ET&D PARTNERSHIP Best Practices

## *BP.1. Administrative Controls*

### **PRACTICE STATEMENT:**

Injuries to personnel from improper job planning and risk assessment.

### **PRACTICE DESCRIPTION:**

Identify type and quantity of Insulate and Isolate components.

- A. Pre-planning to begin at the pre-bid meeting.
- B. Preliminary job site analysis.
- C. Contractor shall request information from the host employer so that the Contractor may be able to conduct adequate risk assessments prior to beginning operations.
- D. Line work on conductors or equipment shall be performed when they are deenergized or a portion is deenergized and grounded when possible.

### **BENEFITS:**

Eliminate injuries resulting from improper planning by ensuring key job hazards are identified and controlled and provide support to contractors in obtaining needed information for effective risk assessments.

## *BP.2. Job Briefings*

### **PRACTICE STATEMENT:**

Provides a uniform methodology and outlines key components of job briefings.

### **PRACTICE DESCRIPTION:**

Document job sequence, hazards to be encountered, and steps taken to control/eliminate hazards by doing the following:

- A. Define routine and critical tasks.
- B. Identify roles and responsibilities.
- C. Identify hazards.
- D. Determine risk mitigation.
- E. Documentation shall include I & I to be used.
- F. Personal Protective Equipment to be used.
- G. Emergency response information.
- H. Number of briefings to be held.

NOTE: Job briefings need to be conducted when work changes significantly.

All crewmembers shall participate in a documented job briefing. Job briefings are to be held at the start of the work shift, as work tasks or hazards differ from original briefing, and as additional personnel arrive at the job site. These job briefings shall include the components of a Hazard Analysis or use your company specific hazard analysis program associated with the work steps, hazards associated with the work step, and ways to eliminate or control the hazards. The job briefing form shall have a provision for each employee to sign to verify they have participated in the job briefing. Each ET&D Partnership company's Management shall establish a review process to ensure that the documented job briefing process is effective.

**BENEFITS:**

- Provides for essential job safety planning guidelines and lists key elements.
- Enhances compliance with OSHA regulatory requirements.
- Incorporates use of a specific hazard identification process in the job planning process that will provide for enhanced controls for risks.
- Proper pre-planning reduces the risk of injury.
- The process and required documentation enhances inclusion and participation of job team members in the safety planning processes associated with the job.

*BP.3. Pre-Use Inspection of Rubber Protective Equipment*

**PRACTICE STATEMENT:**

Protocols related to the effective inspection of insulating protective equipment.

**PRACTICE DESCRIPTION:**

All rubber protective equipment shall be inspected prior to each use. All rubber/plastic insulating equipment shall be inspected for any damage, wear or contamination that would compromise its ability to Insulate or Isolate the linemen from different potentials. Applicable service dates shall be observed. If upon inspection insulating protective equipment is found to be defective the equipment shall be identified and removed from service.

**BENEFITS:**

Provides for uniform inspection guidelines that can be applied industry wide.

#### *BP.4. Qualified Observer*

##### **PRACTICE STATEMENT:**

Identify and utilize qualified observer for critical tasks.

##### **PRACTICE DESCRIPTION:**

A member of the crew shall be identified to act as an observer to ensure clearances are maintained, PPE, and effective cover-up is installed. The observer shall be capable of identifying nominal voltages, energized components, minimum approach distances, and proper safe work practices while crewmembers are working on energized lines.

NOTE: This section is not intended to mandate staffing requirements.

- A. The term “effective cover up” is used to describe the installation of phase-to-phase rated insulating protective cover on energized conductors and/or equipment of different potentials when the lineman is within reaching distance or in areas extended by handling conductive objects.
- B. The term “extended reach” is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

##### **BENEFITS:**

- Eliminate injuries from unrecognized hazards or changes in conditions.
- Clarify duties and provides guidance as to when observers are beneficial.
- Provides guidance on observer qualifications.

#### *BP.5. Insulate and Isolate Safety Performance Check*

##### **PRACTICE STATEMENT:**

Review of qualification, and/or performance criteria to ensure compliance with Isolate and Insulate procedures.

##### **PRACTICE DESCRIPTION:**

A safety review process shall be in place that will be performed by a Competent Person. Included in the review process will be assurances that the company safety rules and proper cover up procedures are being followed. Additionally, documentation such as Job Briefing forms and Job Safety Analysis forms shall be reviewed.

## **BENEFITS:**

- Routine auditing provides for performance and regulatory assurance for critical control techniques.
- Effective auditing will enable enhanced and consistent performance.

### *BP.6. Cradle-to-Cradle Use of Insulating Rubber Gloves and Sleeves*

## **PRACTICE STATEMENT:**

Protocols related to effective use of insulating rubber gloves and sleeves.

## **PRACTICE DESCRIPTION:**

1. When employees are working on energized circuits or equipment using the rubber glove method, rubber protective-insulating gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn cradle-to-cradle when working from an aerial platform.
  - a. Rubber protective insulating sleeves are not required when employees are working circuits with a potential of 600 volts or less if there is no upper arm exposure and the worker will not encroach the 5-foot primary zone.
  - b. The term “effective cover up” is used to describe the installation of phase-to-phase rated insulating protective cover on energized conductors and/or equipment of different potentials when the lineman is within reaching distance or in areas extended by handling conductive objects.
  - c. The term “extended reach” is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.
2. Electrical class rating of the insulating rubber sleeves shall meet or exceed the electrical class rating of the insulating rubber gloves when working on primary conductors.
3. Company policies shall apply when the above conditions cannot be met. Alternative work methods ensuring employee safety shall be identified, communicated to all affected employees, implemented and documented as part of the Job Briefing process.

## **BENEFITS:**

- Provides specific use requirements that are proven methods for reducing electrical contact injuries and fatalities.
- Provides for uniform use guidelines that can be applied industry wide.

*BP.7. Lock-to-Lock Use of Insulating Rubber Gloves and Sleeves*

**PRACTICE STATEMENT:**

Protocols related to effective use of insulating rubber gloves and sleeves.

**PRACTICE DESCRIPTION:**

1. When employees are working on energized circuits or equipment using the rubber glove method, rubber protective-insulating gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn “lock to lock” when employees are working energized URD equipment.

The term “Lock-to-Lock” is used to describe the utilization of rubber gloves and sleeves, when required, prior to the time the pad mounted equipment is unlocked until work is complete and the pad mounted equipment is relocked. Additionally, rubber gloves and sleeves shall be worn when working on or within the extended reach of the conductor or piece of equipment. The term “extended reach” is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

2. Electrical class rating of the insulating rubber sleeves shall meet or exceed the electrical class rating of the insulating rubber gloves.
3. Company policies shall apply when the above conditions cannot be met. Alternative work methods ensuring employee safety shall be identified, communicated to all affected employees, implemented and documented as part of the Job Briefing process.

**BENEFITS:**

- Provides specific use requirements that are proven methods for reducing electrical contact injuries and fatalities.
- Provides for uniform use guidelines that can be applied industry wide.

## *BP.8. Rubber Insulating PPE for the Live Line Tool Method on Distribution Lines*

### **PRACTICE STATEMENT:**

Use of rubber insulating gloves and sleeves while performing distribution power line tasks via the live line tool method.

### **PRACTICE DESCRIPTION:**

#### *A. When working primary voltages aloft:*

For the purpose of this document M.A.D. is defined as the Minimum Approach Distance defined by applicable federal, state or local regulation. M.A.D. may also be known as “Primary Contact Zone”, “Minimum Working Distance”, “Within Reach”, “Extended Reach”, etc.

This Best Practice only applies to those applications where power-line workers are utilizing the “live line tool work method” aka – “hot sticking.” Workers using the “live line tool work method” (“hot sticking”) use insulating tools designed and intended for use while working on energized equipment and/or conductors. Workers using the “live line tool work method” are not permitted to make direct contact with energized equipment and/or conductors with their hands and are not permitted to be in a position where the worker can reach into, extend any conductive object into, or extend any other part of the body into the M.A.D. as prescribed in applicable federal, state and local regulatory standards.

It is not intended nor required that the Strategic Partnership *Cradle-to-Cradle Rubber Glove Work Method Best Practice* be applicable when power-line workers are using the “live line tool work method”. The *Cradle-to-Cradle Rubber Glove Work Method Best Practice* applies only when work is to be done utilizing the “rubber glove work method”. When a task requires the worker to reach into, extend any conductive object into, or extend any other part of the body into M.A.D. while using the “live line tool work method,” the use of rubber insulating gloves and/or rubber insulating gloves and sleeves rated the voltage are required to be used as described in this Best Practice”.

Donning of such PPE shall be done in a safe location so that M.A.D. requirements are not violated. This may include repositioning of the aerial lift to its cradled position. It should be noted however, Incident investigations have revealed M.A.D. violations have occurred during “live line tool work method” operations. The intent of this Best Practice is to eliminate both M.A.D. encroachment violations and subsequent injuries.

### **Live Line Tool Method**

1. Rubber insulating gloves and sleeves are not required when working from a position where the employee cannot reach into, extend any conductive object into, or extend any other part of the body into the M.A.D. while using fiberglass insulating live line tools (“hot stick” method).
2. Before getting into a position where the worker can reach into, extend any conductive object into, or extend any other part of the body into the M.A.D., approved protective equipment shall be used to Insulate and/or Isolate energized conductors and/or parts.
3. Rubber insulating gloves shall be worn when tasks require the employee to reach into, extend any conductive object into, or extend any other part of the body into the M.A.D. when there is no upper arm exposure, even when proper cover is utilized.
4. Rubber insulating gloves and sleeves shall be worn when tasks require the worker be in a position where the worker can reach into, extend any conductive object into, or extend any other part of the body into the M.A.D. when all the above precautions have been taken and upper arm exposure still exists.

#### **BENEFITS:**

- Provides specific use requirements that are proven methods for reducing electrical contact injuries and fatalities.
- Provides for uniform use guidelines that can be applied industry wide.

#### *BP.9. Safety at Heights; Fall Protection when Performing Aerial Work on Wood Poles*

#### **Practice Statement:**

Fall Protection Equipment (FPE) shall be used when ascending, descending, changing position and when in the working position while on a wood pole.

#### **Practice Description:**

- Wood Pole Fall Restriction Device shall be “engaged” ground-to-ground when ascending, descending, changing position and when in the working position.
- When in the working position, Work Positioning Equipment may be used when rigged such that an employee cannot fall more than two feet.
- When climbing wood poles that have pole steps or other obstructions the hitch hike climbing method, utilizing the Work

Positioning Equipment, may be used to ascend or descend when rigged such that an employee cannot fall more than two feet.

- Wood pole climbers shall be trained and competent in the care, use and inspection of components used to conform to this Best Practice. Employers should obtain comprehensive training from the manufacturer as to the equipments proper use (to include “train the trainer”). Employees must be trained in the selection and safe use of the equipment/system. This should include the following: Application limits; techniques used for proper adjusting of the equipment, methods of use, inspection, storage of the device and a demonstration of competency of device usage. Training shall only be conducted by qualified trainers. Refresher training shall be provided that will maintain employee’s competency in the use of required equipment.
- Prior to climbing any wood pole, an inspection of the pole shall be conducted. All components of the Fall Protection Equipment shall be inspected by the climber (per manufacturers’ specifications) to ensure the device is fit for use.
- This Best Practice applies to all climbers including those that perform pole top rescue on wood poles. Rescue application should be pre-determined (as early as possible, but no later than during the pre-job briefing) based on rescue needs such as timeliness and consideration given to the characteristics of the structure that rescue is being performed on. Employers shall address rescue considerations and develop appropriate procedures that will allow successful performance of a given rescue technique for varied field conditions. Climbers shall be qualified in the methods identified to be used for rescue.
- Company policies shall apply when the conditions of this Best Practice cannot be met. Alternative work methods ensuring worker safety shall be identified, communicated to all affected employees, implemented and documented as part of the job briefing process.

### **Benefits:**

To eliminate injuries and fatalities associated with falls from Wood Poles.

### **Definitions:**

- **Fall Protection Equipment (FPE)** — any equipment, device or system that prevents an accidental fall from elevations or that mitigates the effect of such fall.
- **Wood Pole Fall Restriction Device** - A device that, when properly adjusted and combined with other subcomponents and elements, allows the climber to remain at his or her work position with both

hands free and that performs a fall restriction function if the climber loses contact between his or her gaffs and the pole.

- **Work Positioning Equipment (WPE)** — Equipment used to support a worker on the pole so that the worker's hands are free when he or she reaches the work position. A pole strap, a lineman's body belt, and/or a lineman's harness and hooks/gaffs constitute Work Positioning Equipment.

### *BP.10. Fall Protection when Performing Work on Lattice Structures*

#### **Practice Statement:**

Fall Protection Equipment (FPE) shall be used when ascending, while in the working position, when changing positions, descending and/or performing rescue operations while on a lattice structure.

#### **Practice Description:**

Fall hazards associated with aerial work performed on lattice structures shall be assessed, and fall hazard mitigation plans developed.

- Climbers shall be competent in the application of all necessary fall protection methods used for the fall hazard mitigation of the tasks that will be performed on a given lattice structure.
- A Fall Hazard Analysis (FHA) shall be completed. As a function of the planning/job site analysis, the following information should be obtained and included with the FHA:
  - Identify tasks to be performed on given lattice structures.
  - Client / Owner Fall Protection policies, procedures and hazard analysis documentation as applicable.
  - Identify suitable anchorage points that are going to be used for the task to be performed on any given lattice structure.
  - Employers shall address rescue considerations and develop appropriate procedures that will allow successful performance of a given rescue technique for varied field conditions.
  - Determine/Identify necessary FPE and/or Work Positioning Equipment (WPE).
  - Determine climber qualification in the use of FPE and/or WPE.
- FPE/WPE shall be inspected and used in accordance with the manufacturer's instructions and guidelines.

- Company policies shall apply when the conditions of this Best Practice cannot be met. Alternative work methods ensuring climber safety shall be identified, communicated to all affected employees, implemented and documented as part of the job briefing process.
- Lattice structure climbers shall be trained and competent in the care, use and inspection of the equipment used to conform to this Best Practice. Climbers must be trained in the selection and safe use of the equipment/system. Training shall only be conducted by qualified trainers.
- Visual inspections shall be performed prior to, and during climbing, to ensure that the structure is in acceptable condition for the safe execution of the tasks to be performed.
- This Best Practice applies to all climbers including those that perform rescue on lattice structures. Rescue application should be predetermined as early as possible, but no later than during the pre-job briefing, based on rescue needs such as timeliness and consideration given to the characteristics of the structure that rescue is being performed on.

**Benefits:** To eliminate injuries and fatalities associated with falls from lattice structures.

**Definitions:**

**Anchorage** - a secure point of attachment on the lattice structure to which the fall protection system is connected.

**Fall Protection Equipment (FPE)** — any equipment, device or system that prevents accidental falls from elevations or that mitigates the effect of such fall.

**Personal Fall-Arrest System (PFAS)** – a system used to arrest a fall from a working level. It consists of an anchorage point, connectors, body harness and may include a lanyard, deceleration device, life line, or suitable combinations of these.

**Work Positioning Equipment (WPE)** - Equipment used to support a worker on the lattice structure so that the climber's hands are free when he or she reaches the work position. A safety strap (skid), a lineman's body belt, and/or a lineman's harness constitute WPE.

**Fall Hazard Analysis (FHA)** – Analysis conducted to identify the integrity of the structure. Identify the fall hazards based on the type of structure and tasks to be performed on given structure, as well as equipment and procedures necessary to control the fall hazards.

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Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## **BRACONIER**



# EISENHOWER JOHNSON MEMORIAL TUNNEL

## **SAFETY & HEALTH PROGRAM MANUAL**

# CORPORATE SAFETY POLICIES AND PROCEDURES

*BRACONIER PLUMBING AND HEATING CO. INC.*  
Englewood, CO

## 1.0 PURPOSE

This safety policy states Braconier Plumbing and Heating Co. Inc.'s overall view of safety and the tenets of the safety program for our company.

In order to establish effective safety policies and procedures, this General Safety Policies and Procedures Plan summarizes information regarding safety policies and procedures at our company. John Sweet is responsible for implementing and updating this plan. This plan is accessible to employees, OSHA, and/or the Department of Labor for review.

## 2.0 General Company Safety Philosophy Statement

This general company safety philosophy has been developed to reflect and communicate the proactive safety attitude maintained at this company.

Braconier Plumbing and Heating Co. Inc. will comply with appropriate safety and security laws and regulations such as those established by:

- ❖ Occupational Safety and Health Administration (OSHA)
- ❖ Environmental Protection Agency (EPA)
- ❖ Department of Transportation (DOT)
- ❖ All other applicable federal, state and local safety and health regulations.

In addition, our corporate safety policy includes the following vision statements:

- Safety will never be compromised for short cuts or expediency.
- Our first and foremost goal is dedication to the safety and health of our employees.

## 3.0 TYPES OF WRITTEN PLANS IN PLACE

Because we care about our employees and strive to provide a safe workplace, we have implemented a number of written safety plans. These written plans provide guidance and direction for the safety issues they cover. The topics covered in our written safety plans include:

- ❖ Personal Protective Equipment/Hazard Assessment
- ❖ Hazard Communication
- ❖ Bloodborne Pathogens
- ❖ Emergency Actions
- ❖ Fire Prevention
- ❖ Lockout Tagout
- ❖ Contractor Safety
- ❖ Powered Industrial Trucks

#### **4.0 EMPLOYER/EMPLOYEE RESPONSIBILITIES**

This section defines the responsibilities of the employer and the employees at Braconier Plumbing and Heating Co. Inc.. Each responsibility is to be taken seriously at all times.

- We make safety our number one goal and provide ongoing training to our employees in all aspects of safety. Employee recommendations to improve the safety and health conditions will be given thorough consideration by the management.
- Employees must report all accidents, injuries, and unsafe conditions to their supervisors.
- We require our employees to follow all safety procedures and mandate the use of Personal Protective Equipment (PPE).
- Members of management are committed to working with our employees to provide a safe and healthful workplace. It is our policy that employees do not perform work tasks if they are unsure of their ability to complete the task safely.
- Applying both common sense and awareness is the responsibility of all employees as a condition of employment. This is also one of the employees' best tools for creating and maintaining a safe work environment.

#### **5.0 CERTAIN CIRCUMSTANCES WARRANT DISCIPLINARY ACTION**

- Failure to follow company safety rules and/or procedures.
- Failure to use provided Personal Protective Equipment (PPE).
- Consumption of alcohol or illegal drugs.

## **6.0 DISCIPLINARY ACTION**

All safety rules, procedures, and plans in effect at Braconier Plumbing and Heating Co. Inc. are to be followed. Upon employee violation of company safety rules, the individual(s) will be penalized. Possible disciplinary actions include, but are not limited to:

- Verbal warning with an explanation of why the safety rule in question is necessary.
- Written warning with an explanation of why the safety rule in question is necessary and time off with supervisor's approval.
- Termination of the employee(s) with an explanation.



# EISENHOWER JOHNSON MEMORIAL TUNNEL

## SAFETY RULE POLICY

# SAFETY RULE POLICY

*Braconier Plumbing and Heating Co. Inc.  
Englewood, CO*

The following safety rules are to be followed by all employees. These rules were implemented for the purpose of creating a safe work environment and to minimize work-related injuries and exposures.

## ARTICLE 1. PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment must be used as hazards require.

### SECTION 1.01 Eye Protection

Eye protection must be worn under the following circumstances:

- A. In all areas of the shop.
- B. In any area where there is the potential for flying particulate (grinding operations, blowing, use of compressed air, and other similar activities).
- C. Any other area in the shop designated by your employer.

### SECTION 1.02 Foot Protection

Appropriate foot protection must be worn under the following circumstances:

- A. If moving an unsecured load weighing more than 25 pounds, steel-toed boots are required.
- B. If there is the hazard of rolling objects, steel-toed boots are required.
- C. When doing welding, soldering, brazing or cutting metal, durable leather shoes are required.
- D. When walking/working on slippery surfaces, soft-soled shoes are required.
- E. Soles of shoes must be durable to withstand potential piercing from sharp objects.
- F. In any other area designated by your employer.

### SECTION 1.03 Gloves

Appropriate protective gloves must be worn under the following circumstances.

- A. When there is the hazard of metals or other sharps cutting the hands leather gloves must be worn.
- B. When welding, soldering, brazing or cutting metals, leather or specialized welding gloves must be worn.
- C. When coming into contact with another individual's blood or other bodily fluids, non-permeable gloves must be worn.
- D. When working with caustic chemicals, reference the material safety data sheet to determine the type of glove required/recommended.
- E. Whenever your employer mandates their use.

### SECTION 1.04 Protective Equipment

Appropriate protective equipment shall be used whenever there is the potential of contact with any live, exposed electrical circuit that exceeds 50 volts A.C.

- A. Insulated tools.
- B. Insulated gloves.

### SECTION 1.05 Respirators

Respirators are to be worn under the following circumstances:

- A. Whenever working around airborne hazardous chemicals.

- B. Whenever working around airborne particulate, including but not limited to dusts, sawdust, coal dust, or any other particulate that OSHA designates.
- C. Whenever working in an oxygen-deficient atmosphere.
- D. Whenever your employer designates the use of respirators.

*Criteria for respirator use:*

1. *Never use a respirator without being test fitted.*
2. *Never use a respirator without having a medical examination prior to use.*
3. *Never use a respirator after dental work without being re-fitted.*
4. *Always shave prior to the use of respirators, as hair stubble can create a bad seal.*
5. *Know and use the appropriate filter for the hazards present.*
6. *Whenever you change filters, check to see that you have a good seal.*
7. *Never alter the respirator.*
8. *Never use an altered or damaged respirator.*
9. *If you feel dizzy, fatigued, or have difficulty breathing while wearing the respirator, discontinue its use and report to your supervisor.*
10. *Never use a respirator without being trained in the use of that particular respirator.*

### **SECTION 1.06 Hard Hats**

Hard hats are to be worn under the following circumstances.

- A. Whenever there is the potential for flying or falling objects (unstable stacks, etc.).
- B. Whenever working in an area where someone is working above you.
- C. Whenever your employer designates their use.
- D. When a contractor on another job site mandates the use for their employees.

### **SECTION 1.07 Hearing Protection**

Hearing protection is to be worn under the following circumstances:

- A. During all grinding applications
- B. During machine tool operations.
- C. In all other areas designated by your employer.

### **SECTION 1.08 Face Shields**

Face shields are to be worn under the following circumstances:

- A. During all welding/cutting applications.
- B. During all grinding applications.
- C. During machine tool operations.

### **SECTION 1.09 Welding Curtains**

Welding curtains are to be used under the following circumstances:

- A. During all welding/cutting applications.

## **ARTICLE 2. MACHINES AND MACHINE GUARDING**

The following rules apply to all machinery located at our facility:

### **SECTION 2.01 Machine Operations**

- A. Employees must be trained and authorized before using any machines.
- B. If unsure of a machine application or process, ask your supervisor before proceeding.

### **SECTION 2.02 Machine Guarding**

- A. All protective guards and devices must be in place and operational at all times the machine is in use.

- A. Work rests must be adjusted to OSHA criteria.

### **SECTION 2.03 Machine Condition and Repair**

- A. If any part of the machine is defective, it must be reported and repaired/replaced before you may use the machine (this includes ensuring cords are not frayed or otherwise damaged).
- B. All machines must remain properly wired according to OSHA, State, Federal and local regulations.
- C. Grinding wheels must be replaced if they have nicks or cracks.
- D. No alterations may be made on any machine without both the employer's and the manufacturer's prior approval.
- E. Machines and equipment in need of repair or replacement must be removed from service immediately.

### **SECTION 2.04 Lockout/Tagout**

- A. All machines falling under lockout must be locked out before servicing.
- B. Only authorized Lockout/Tagout personnel may perform repairs or maintenance on machinery.

## ARTICLE 3. HOUSEKEEPING

Housekeeping is everyone's responsibility. The following rules apply to all employees.

### SECTION 3.01 Chemicals

- A. When you spill a chemical, it must be cleaned up immediately.
- B. Each employee is responsible for immediate clean-up of spills or leaks of fluids in his/her work area.
- C. Chemicals cannot be stored on the floor in containers of less than 5 gallons.
- D. Chemicals must be stored with properly fitted lids.
- E. Before storing or using chemicals, read the MSDS so you are aware of the proper procedures and hazards associated with the chemical.
- F. Chemicals in containers of 30 gallons or larger can not be stacked directly on top of the other unless stacked on horizontal racks or pallets.
- G. There must be ample clearance (36 inches) around flammable storage cabinets.

### SECTION 3.02 Aisles and Passageways

- A. All aisles and passageways must be kept free of trip, slip and fall hazards.
- B. All aisles and passageways must be kept free of debris.
- C. Cords and air lines, and similar equipment must be carefully placed or guarded during a job so as not to endanger clients or other employees.
- D. All cords must be picked up at the end of a job to eliminate trip/fall hazards.
- E. If a liquid is spilled in a path of travel, it must be cleaned up immediately. Spills must be guarded if you have to leave the area temporarily.
- F. No item can be stored in a path of travel if it minimizes the path of travel to less than 30 inches.

### SECTION 3.03 Storage Areas

- A. Storage areas must be maintained in a neat, organized manner and remain free of unnecessary clutter.
- B. No rags may accumulate in storage areas that have been used to wipe up hazardous chemicals or bloodborne pathogens.
- C. If flammable chemicals are maintained in a storage area, there can be no ignition source present.

### SECTION 3.04 Outdoor Storage

- A. Outdoor chemical storage must be at least 50 feet away from potable water or drainage systems.
- B. All applications of indoor storage also apply to outdoor storage.
- C. Outside storage must be kept in such a manner to deter rodents from entering the storage area.

**SECTION 3.05 Housekeeping in General**

- A. If you make a mess, clean it up.
- B. Keep all areas clean, including your personal work area(s). This also includes trash build up.
- C. When using mills, lathes, or drill presses, clean up any debris left behind from the machine and/or the surrounding areas immediately following completion of the task.

**ARTICLE 4. HAND TOOLS****SECTION 4.01 General Use**

- A. All hand tools must be appropriate for the task you are performing.
- B. Hand tools must never be used for anything but their intended purpose.
- C. When working around electricity, use insulated tools.

**SECTION 4.02 Specific Rules**

The following rules also apply to tools employees bring in from home.

- A. If the handle of any hand tool is loose, cracked, or damaged in any other manner, the tool must be repaired/replaced (taping of the handle is not considered a repair).
- B. If a hand tool is damaged in such a way as to cause flying particle hazards, the tool must be replaced.
- C. If the tool should be sharp and is not, it cannot be used until sharpened.
- D. All hand tools must be in safe condition. This means that it can still perform the function it was designed for without causing any type of injury or illness.
- E. Hand tools can only be repaired by a qualified technician and according to manufacturer's specifications.
- F. Hand tools in need of repair or replacement must be removed from service immediately.

**ARTICLE 5. HANDLING, STORAGE AND USE OF CHEMICALS****SECTION 5.01 Chemical Storage**

- A. Chemicals must always be stored in closed containers.
- B. Chemicals in containers smaller than 5-gallon quantities must be stored on shelves.
- C. Chemicals in containers of 30 gallons or larger must not be stacked when stored except on horizontal racks or pallets, and then only 3 high.
- D. Chemicals that are incompatible cannot be stored together.
- E. Combustible chemicals cannot be stored on the same shelf.
- F. All chemicals must be labeled according to the criteria set forth in OSHA CFR 1910.1200. All containers except for one-time use containers must be labeled appropriately.

**SECTION 5.02 Use of Chemicals**

- A. Never use a chemical until you have read its MSDS.
- B. Do not use chemicals in unlabeled containers.
- C. Never use chemicals without wearing appropriate P.P.E.
- D. Never mix chemicals until you verify their compatibility.
- E. Never use flammable chemicals around ignition sources.

**SECTION 5.03 Handling of Chemicals**

- A. When transporting chemicals by hand or other means, always ensure the load is secured

and the lid is on tight.

- B. Never transport chemicals until you read the MSDS to ensure the chemical is stable.
- C. Never transport incompatible chemicals together.

## **ARTICLE 6. SAFETY AWARENESS**

Safety is everyone's responsibility. Your actions may not affect just you. Hence, there are some general safety rules that must be adhered to:

### **SECTION 6.01 Horseplay**

Horseplay at the shop will not be tolerated. Horseplay includes but is not limited to the following:

- A. Throwing items
- B. Practical jokes
- C. Chasing others
- D. Any other action that could result in injury.

### **SECTION 6.02 Fighting and/or Disruptive Behavior**

Fighting and other disruptive behavior are not allowed while on company time or property.

### **SECTION 6.03 Alcohol and Other Drugs**

The use of any drug while working impairs your ability to function properly and creates a safety hazard for you and other employees.

- A. Alcohol and other drugs are prohibited in the work place.
- B. Anyone known to be under the influence of alcohol or other drugs shall not be allowed on any job site.

### **SECTION 6.04 Following Instructions**

You must follow your supervisor's instructions at all times.

- A. If you are unclear of instructions you have received, ask for clarification.
- B. If you notice unsafe conditions or practices (including other employees), notify your supervisor.
- C. No work will be started until a hazard analysis is completed, all safety guards are in place, and the supervisor has given approval for the work to progress.

### **SECTION 6.05 Information**

It is the responsibility of every employee to know the location of:

- A. First aid supplies
- B. Eye wash stations
- C. Fire extinguishers
- D. Fire exits
- E. Evacuation procedures
- F. Telephones
- G. Material Safety Data Sheets

### **SECTION 6.06 Reporting**

All accidents, injuries, and illnesses must be reported to your supervisor immediately.

## **ARTICLE 7. CONFINED SPACES**

Because of the hazards associated with confined spaces, the following safety rules must be adhered to:

- A. No confined space will be entered until a hazard analysis has been completed. This includes checking for airborne chemicals, oxygen deficiency, collapse hazards, and any other recognizable hazard for that space.
- B. A daily hazard analysis must be completed due to the varying nature of confined spaces.
- C. No confined space can be entered without an attendant.
- D. For permit required confined spaces, there must always be an attendant outside who has been trained in his/her responsibilities.
- E. Never enter a confined space without your supervisor's knowledge and approval.

## **ARTICLE 8. BLOODBORNE PATHOGENS**

Because of the risks associated with potentially contaminated blood and other bodily fluids, the following rules must be strictly adhered to:

### **SECTION 8.01 Clean-up of Blood or Other Bodily Fluids**

- A. Do not attempt to clean up spills unless you have been properly trained and authorized.

## **ARTICLE 9. FORKLIFT OPERATIONS**

To protect the safety and health of all employees, the following rules have been established:

### **SECTION 9.01 Forklift Operations**

- A. Only company-trained and authorized employees may operate company forklifts.

## **ARTICLE 10 ERGONOMICS**

In order to minimize injuries resulting from poor ergonomic practices, the following guidelines have been established.

### **SECTION 10.01 Lifting Techniques**

- A. Always use proper lifting techniques (bend your legs, not your back).
- B. Never attempt to lift or push an object that is too heavy.
- C. Ask for help when moving a heavy and/or awkward object.

## **ARTICLE 11 COMPRESSED GASES**

### **SECTION 11.01 Storage**

- A. Compressed gases must be stored in proper areas.
- B. Flammable gases must be stored in proper areas.

### **SECTION 11.02 Transportation**

- A. When transporting compressed gases, cylinders must be kept upright and secured in a proper manner.

**AMENDMENT TO SECTION 1.04 Protective Equipment**

1. Work on energized components can only occur with the express permission of the ADF-Commander or designated representative. Any work done on live parts without the approval of the commander will be in direct violation of the onsite electrical safety policy. Work on energized parts is only permitted when de-energizing the power source is not feasible due to equipment design or operational limitations or creates an additional hazard. Processes that do not require and Energized electrical work permit (EEWP) to work energized are:
  - a. Electrical testing and measurement activities
  - b. Equipment operating at less than 50V

**AMENDMENT TO SECTION 3.01 Chemicals**

1. Any spilled chemical will result in a call to Environmental, Safety, and Health (ESH)
2. If large quantities are spilled and/or small harmful quantities and an employee is not trained in clean up procedures, a call to the SOC (911) shall be made in addition to ESH.

**AMENDMENT TO SECTION 7 Confined Spaces**

1. Prior to entering a Permit Required Confined Space, an ADF-C Confined Space Entry Permit shall be completed. Details on how to complete an ADF-C Confined space permit are in Appendix 4 of the ADF-C ESH plan.



# EISENHOWER JOHNSON MEMORIAL TUNNEL

## EMERGENCY ACTION PLAN

# EMERGENCY ACTION PLAN

*Braconier*

## **1.0 PURPOSE**

The purpose of this program is:

- To maintain a safe, healthy environment for employees and visitors of Braconier.
- To communicate to employees, visitors, clients, and contractors of the proper procedures and their responsibilities in the event of an emergency.
- To comply with the OSHA Employee Emergency Plans Standard 29 CFR 1910.38(a).

## **2.0 SCOPE**

This program applies to all employees at Braconier where employees may be exposed to hazards during an emergency situation.

Paul Stortz is the Emergency Action Plan Coordinator. He will review and update the program as necessary. The program is located in the Main Office, where it is accessible to all employees. Copies of the program may be obtained by contacting Mr. Stortz or a Jobsite Supervisor. This program is current as of 11-05-03.

Employees (or their representative) may obtain additional information on this written program, the Emergency Action Plan Standard, applicable MSDS, and chemical information lists from a direct supervisor, Paul Stortz, or the company's safety and health consultant of C.O.S.A., Inc.

Under this program, employees will be informed of the contents of the Emergency Action Plan (EAP) Standard, the purpose of the plan, emergency escape procedures, route assignments, where to meet in the event of an evacuation and who to report to after an evacuation.

If, after reading this program, you find that improvements can be made, please contact Paul Stortz or a Jobsite Supervisor. We strive for clear understanding, safe behavior, and involvement in the program from every level of our company.

## **3.0 EMERGENCY ESCAPE PROCEDURES AND ASSIGNMENTS**

Our emergency escape procedures and assignments are designed in response to many potential emergencies, including fires, tornados and major chemical spills or releases.

Employees need to know what to do when they are the first to discover an emergency and/or when they are alerted to a specific emergency. Emergency Action Plan Coordinator Paul Stortz has developed procedures for responding to emergencies, depending on what the emergency is. The following guidelines apply to all emergency situations:

1. All employees are trained in emergency evacuation procedures. Refresher training is conducted when an employee's responsibilities or designated actions under this plan change. They are also retrained if the plan itself is changed or revised. Before assigning an employee to his/her duties, the employer must review the EAP with him/her to ensure that every employee is aware of both proper procedures and how to protect him or herself in the event of an emergency.
2. The initial training includes the use of floor plans and workplace maps, which clearly show the escape routes included in this EAP. Color-coding assists employees in understanding their designated escape routes. These floor plans and maps are available and posted throughout the facility to aid employees in the event of an emergency evacuation.
3. No employee is permitted to re-enter the main complex or worksite until advised by Paul Stortz or his designee. This is done only after a competent person (an emergency response official) has made the determination that re-entry is safe.
4. A list of designated meeting locations or safe areas is given in this written program.

#### **4.0 SITUATIONS THAT WARRANT BUILDING EVACUATIONS**

(Building evacuation may be partial or complete.)

##### **Partial evacuation:**

A partial evacuation is appropriate when only a limited group of employees are exposed to a safety or health hazard (i.e. isolated chemical fumes or electrical outages).

**NOTE: A fire always warrants total evacuation.**

##### **Full evacuation:**

A full evacuation is appropriate when a potential threat to the safety or health of all employees is apparent (i.e. fire, explosion or potential explosion such as a natural gas leak, hazardous chemical spill or natural disaster).

For fires and major chemical spills, meeting locations and reporting procedures are as follows:

- **All Personnel** (and any visitors or vendors in the facility at the time of emergency) are to evacuate by the nearest exit unblocked by a fire or chemical hazard and assemble in the parking lot south of the building. Once at the meeting location, employees should report to Paul Stortz. If Mr. Stortz is not available, employees should report to a direct supervisor.
- **NOTE TO ALL PERSONNEL: Use extreme caution when evacuating the facility and crossing the street so as not to enter the path of emergency response vehicles.**

In the event of a tornado, employees are to report to the following designated locations and individuals:

- **All Personnel** (and any visitors or vendors in the facility at the time of emergency) are to assemble in the nearest interior restroom. Once at the meeting location, employees

should report to Paul Stortz. If Mr. Stortz is not available, employees should report to a direct supervisor.

Everyone is to lower his/her body in a crouched manner, protect his/her head, and position his/her body against something that will deflect falling debris (i.e. walls, equipment, etc.) ***Absolutely stay away from outside windows!!***

Braconier will initiate evacuation proceedings for actual tornados only and not for tornado watches.

Paul Stortz will monitor the news in the event of a tornado warning.

For all emergencies:

As the employees' health and safety is of top priority, there are no critical operations to maintain at this time. All employees are to shut down their equipment if time allows, quickly evacuate, and report to their designated location(s). If future developments dictate critical operations to be maintained, we will amend this written program to include those procedures.

## ***5.0 AUTHORITY TO CONTACT EMERGENCY RESPONDERS***

For a fire or major chemical spill:

If an employee is the first individual to detect a fire or major chemical spill, he/she should immediately contact emergency responders by dialing 911. Before evacuating, the employee should notify a direct supervisor (or Paul Stortz, if a supervisor is not available) of the location and extent of the emergency, as well as the action taken to contact emergency responders.

For a medical emergency:

In case of a severe medical emergency (victim is unconscious, not breathing, bleeding profusely, etc.), call 911 immediately. Stay with the injured person until medical assistance arrives and make him/her as comfortable as possible. Do not move the injured person.

## ***6.0 PROCEDURES FOR CONTACTING EMERGENCY RESPONDERS***

1. Define the nature of the emergency.
2. Identify the name of the business (Braconier)
3. Give the address (2626 S. Raritan Circle.)
4. Specify which entrance to use.
5. State your name.
6. Stay on the line (if your safety and health are not in jeopardy) until the dispatcher advises you to hang up.

## ***7.0 PROCEDURES FOR NOTIFYING EMPLOYEES OF AN EVACUATION***

Employees will be advised of a fire emergency via the intercom and P.A. systems.

For a tornado emergency, employees will be advised via the intercom and P.A. systems.

## **8.0 AUTHORITY AND ORGANIZATIONAL STRUCTURE**

The same organizational structure employed during normal business activities will be used during emergency procedures. In the event a manager or supervisor is absent during an emergency, his/her backup will assume responsibility.

## **9.0 ACCOUNTABILITY**

In order to account for all employees, we have trained our staff to report to specific personnel in the event of an emergency. Employees report to supervisors, who then report to John Durant or Paul Stortz. In this manner, the Emergency Action Plan Coordinator (or his alternate) can effectively communicate with emergency responders regarding the evacuation status and prevent anyone from being left in the building.

Because there may be employees who may not have been aware of an evacuation, specific personnel will check the following locations before evacuating the facility (**this is to be done without jeopardizing their safety and if time permits**):

- For all shifts, the shift supervisor and maintenance personnel will conduct a walkthrough of the facility, including restrooms and storage areas.

## **10.0 FIRE FIGHTING RESPONSIBILITIES**

The Englewood Fire Department will perform all fire fighting responsibilities.

## **11.0 CHEMICAL SPILL CLEANUP PROCEDURES**

Only responding Hazmat teams may clean up major chemical spills or releases.

## **12.0 EMERGENCY ACTION PLAN (EAP) COORDINATOR'S RESPONSIBILITIES**

At Braconier, Paul Stortz acts as the Emergency Action Plan Coordinator and is responsible for the following:

1. Developing and maintaining the EAP.
2. Ensuring that the employees are trained and made aware of all components of the EAP.
3. Conducting at least annual fire drills.
4. Updating the employee list as changes dictate and distributing it to appropriate personnel.
5. If evacuation is determined necessary, the EAP Coordinator will ensure that:

- Employees are notified and a head count is taken to confirm total evacuation of all employees
- When practical, equipment is secured for protection.
- All records and property are arranged as necessary.

### ***13.0 TRAINING***

All employees at Braconier will be trained in the following components of the EAP:

- Reporting of Emergencies
- Escape Routes
- Meeting Locations
- The Necessity of Accountability
- Employee Responsibilities Regarding this EAP
- Alarm/PA system
- Procedures for an Emergency Building Evacuation
- Fire drills

### ***14.0 APPENDICES***

We have attached to the written EAP the following information to better clarify this plan:

- A copy of the OSHA Regulations for Emergency Action Plans, 1910.38(a)
- Diagrams of emergency escape routes.
- Diagrams of meeting locations.
- Documentation of fire drills.

Barnard EJMT Team	EJMT FFSS Project No. C 0703-360 Subaccount 17810 Design-Build Project SHORT-TERM OPERATIONS PLAN
Rev. 3	

## EXHIBIT C – NOTIFICATION LOG

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