



**GLOBAL WATER RESOURCES L.L.C.**

# **Health & Safety Procedures Manual**

**HEALTH & SAFETY PROCEDURES MANUAL**  
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# **HEALTH & SAFETY PROCEDURES MANUAL** **ACQUISITION HEALTH & SAFETY DUE DILIGENCE**

## **1.0 Purpose**

To assist Business Development in the Commercial Development Process (CDP) by providing specialized information for fixed asset investments, material contracts and financial investments.

## **2.0 Scope**

This procedure applies to all Global Water Resources Regions/Districts and falls under the jurisdiction of the Water / Water Reclamation Divisions. (Avondale, AZ.).

## **3.0 Responsibilities**

The health & safety due diligence of prospective acquisitions is the responsibility of Business Development with support from the Operational Management function within each business unit.

## **3.0 Procedures**

- Please refer to the appropriate section, “Guiding Principles of Acquisition” of the Commercial Development Process presently enacted.
- When requested, schedule an appointment with the appropriate person(s) to review the opportunity’s assets... You may be part of a group to review the opportunity’s assets.
- Complete a review of the health & safety, security and insurance programs along with a standard inspection of all applicable facilities.
- The review report should be in narrative form and include and identify the following:
  1. Identify successful areas/programs
  2. Identify deficient areas/programs
  3. Determine estimated cost of upgrades for deficient areas/programs
  4. Identify potential future areas of concern
- Report is to be submitted to the appropriate Business Development representative in 7 days or less, or in a previously agreed to timeline.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **AERIAL LIFTS**

### **1.0 Purpose**

The purpose of this standard operating procedure is to define safe operating practices when aerial lifts are used within Global Water Resources operations.

### **2.0 Scope**

The Company has developed guidelines for the safe operation of aerial platforms and equipment (for example, man-lifts, JLGs, scissor lifts, tower trucks, etc.) and to comply with United States (OSHA) Occupational Safety Standards.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all employees operate aerial lifts in a safe manner in accordance with this procedure, manufacturer's recommendations, and applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and operating aerial lifts in a safe manner.

### **4.0 Definitions**

Aerial Lifts – Aerial devices used to elevate personnel above ground level, such as extension boom platforms, aerial ladders, articulated boom platforms, vertical towers such as scissor lifts and any combination of these devices.

### **5.0 Requirements**

Allow only trained and authorized employees to operate aerial lifts. Conspicuously display the instruction and warning placards and load chart and ensure legibility on each lift. Load limits specified by the manufacturer will not be exceeded. The operator's manual will be readily available to the operator.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **AERIAL LIFTS**

### **5.1 Inspections**

A competent person will inspect the lift before use and immediately after any incident that may have damaged the lift, using the manufacturer's guidelines. Employees must report any defects to their supervisor immediately. The Company will remove defective equipment from service until it is repaired to manufacturer's specifications. Any repairs or modifications to the lift will meet the manufacturer's specifications.

The competent person will also inspect the work area surface to ensure it is reasonably level, stable, and free from hazards, such as covered excavations or debris that could cause tipping. The lift controls will be plainly marked as to their function. Authorized operators will test each control every day before use.

### **5.2 Safety Precautions**

When traveling, the operator will ensure the boom is in the lowered position with the turntable locked. All rough terrain travel will be conducted in the "SLOW" mode. The foot switch will not be removed, blocked, disabled, or modified in any manner. If aerial platforms are equipped with outriggers, they will be fully extended before personnel are lifted.

An observer will monitor all movement to insure proper clearance and stability when the lift operates in congested areas or when the operator does not have full visibility. Special attention must be given to ground conditions and grating. When load bearing capacities of grates is unknown, steel plating or alternative means will be utilized to support the aerial lift.

All personnel will wear approved fall arrest equipment that is attached to the platform attachment point while occupying the lift. Personnel will stand on the floor of the platform, not on boxes, planks, railings, or other devices.

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## **AERIAL LIFTS**

The aerial lift will not be used for material transport, except for small pieces required for the job at hand. All materials and tools will be contained totally within the work basket; the load rating of the lift will not be exceeded.

Aerial lifts will not be operated near electrical power lines unless the lines have been de-energized or adequate clearance is maintained in accordance with the following chart:

<b>VOLTAGE RANGE</b>	<b>MINIMUM DISTANCE</b>
Less than 50KV	10 feet
50K to 200kV	15 feet
200KV to 350kV	20 feet
350KV to 500kV	25 feet
500KV to 750Kv	35 feet
750KV to 1000kV	45 feet

Except in case of emergency, ground controls will not be operated without permission of personnel occupying the platform.

### **5.3 Training**

The supervisor or other designated individual will train employees on the safe use of aerial lifts and will include the following:

- Recognition of and preventative measures for the safety hazards associated with their tasks.
- General recognition and prevention of safety hazards associated with the use of the work platform.
- Elements of the emergency action plan describing procedures to be utilized in the event of a failure of the power supply unit or other emergencies that may arise.
- The proper use of the lift and proper handling of any materials on the lift.
- The maximum intended load and the load carrying capacity of the lift.

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# Health & Safety Procedures Manual

## ARC Flash Protection

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### ARC FLASH PROTECTION

#### 1.0 Purpose

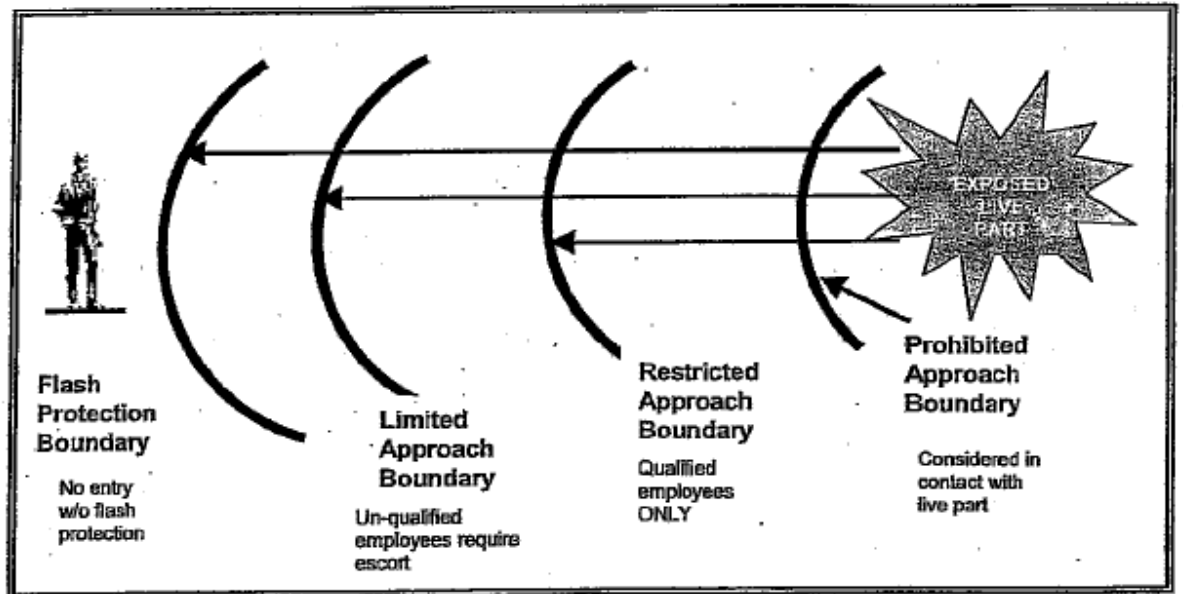
- To establish methods and requirements for work on or near energized electrical equipment to ensure the safety of personnel.
  - Work practices
  - Protective Clothing and Equipment
- Arc Flash guidelines do not apply to electronic equipment. While a shock potential can exist when working on electronic equipment such as SCADA or other facility monitoring systems, an arc flash is unlikely. Use safe work practices when working on such equipment.
- This procedure does not apply to activities performed in station switchyards and transformer yards. Refer to the applicable transmission maintenance procedures.

#### 2.0 REFERENCES

- OSHA 29CFR 1910.306 Specific Purpose Equipment and Installation
- OSHA 29CFR 1910.269 Power Generation, Transmission, and Distribution
- NFPA-70E, Standard for Electrical Safety in the Workplace, 2008 Edition
- IEEE-1584, Guide for Arc Flash Calculations
- Global Water - Health & Safety Procedures Manual – Electrical Safety
- Global Water – Health & Safety Procedures Manual - Lockout/Tag-out Hazardous Energy Control Program

### 3.0 DEFINITIONS

- **Arc Blast** – Force of plasma and fire from an electric arc.
- **Arc Flash Hazard** – Danger associated with the arc flash (e.g., the possibility of radiation burns, inhalation of vapors, and injury from projectiles).
- **Arc Rating** – Maximum incident energy resistance demonstrated by a material, or layers of materials prior to material break-open or onset of a second-degree burn. Arc rating is usually expressed in cal/cm.
- **Boundaries (See [Figure #1](#) & [Attachment 1](#))**
  1. **Flash Protection Boundary** – An arc flash protection boundary at a distance from an exposed live part within which a person could receive a second degree burn if an electrical arc flash were to occur. Employees entering this boundary must wear PPE as designated. **(A default distance of four (4) feet as allowed by the NFPA & OSHA for voltages less than (<) 600 volts.)**
  2. **Limited Approach Boundary** – A shock protection boundary at a distance from an exposed live part. Employees entering this boundary must be qualified or escorted by a qualified employee. **( A default distance of 3.5 feet (42 inches) as allowed by the NFPA & OSHA)**
  3. **Restricted Approach Boundary** – A shock protection boundary that can only be crossed by qualified persons knowledgeable in the use of shock protection techniques, tools and equipment. **(A default distance of one (1) foot (12 inches) as allowed by the NFPA & OSHA).**
  4. **Prohibited Approach Boundary** – A shock protection boundary within which work is considered the same as making contact with the live part. **(A default distance of one (1) inch as allowed by the NFPA & OSHA)**
  5. **Default Boundary** – The boundary being used in these procedures in lieu of Flash Hazard Analysis. The NFPA allows the use of **default boundaries in lieu calculated distances for voltages less than (<) 600 volts.**



**FIGURE 1 Limits of Approach**

- **Deviation Control Plan** – ( [Attachment-5](#) ) A plan that can allow deviation from normal arc flash or shock protection requirements provided that strict adherence to the deviation is followed. This is a rare circumstance that may arise when a worker is near energized circuitry  $\geq 240V$  while working on non-electrical equipment or equipment of less voltage. Examples include, but are not limited to: cranes, hoists, HVAC, UPS, air dryers, etc.
- **Electric Arc** – Flow of current between two electrodes through ionized gases and vapors. It is started by flashover or the introduction of some conducting material between energized parts.
- **Electrically Safe Work Condition** – A state in which the conductor or circuit part to be worked on or near has been disconnected from energized parts, locked/tagged in accordance with established standards, tested to ensure the absence of voltage, and grounded if determined necessary.
- **Exposed Live Parts** – Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts that are not suitably guarded, isolated, or insulated.
- **Flame Resistant Clothing** – Clothing that is either inherently flame resistant or is treated with a specific treatment so that the material does not continue to burn after exposure to and removal of a source of ignition.

- **Flash Suit** – A complete flame resistant suit that covers the entire body. Flash suits are provided from a manufacturer with a specific known Arc Thermal Performance Exposure Value.
- **Guarded** – Covers installed, doors shut, shields in place, enclosure closed, or otherwise protected by means of suitable covers, barriers, screens, mats or platforms designed to remove the likelihood of approach to a point of danger or contact with energized electrical components by personnel or objects. Examples include:
  - Motor lead termination box
  - Power panel door or cover
  - Closed MCC breaker door
  - Relay cabinet door or cover
  - Closed transformer control cabinet door
  - Closed switchgear door or cover
  - Less than 300 Volts for an insulated conductor
- **Lockout Device** – Utilizes positive means, such as a lock and key, or combination, to physically hold an energy-isolating device in a safe position to prevent the energizing of a machine or equipment.
- **Nominal Voltage** – A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (as 120/240 volts, 480Y/277 volts, 600 volts). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.
- **Personal Protective Equipment** – Clothing and equipment designed to mitigate the effects of hazards to which workers might be exposed. (See [Attachment 2](#))
  - **Level 1** – Perform Isolation / Lockout – Tag-out only. (No-Testing)
  - **Level 2** – At <600 Volts, work shall consist of testing for presence of voltage using a Non-Conductive Voltage Detection Device, while adhering to the limitations of [Attachment 1](#). Upon verification of absence of voltage, worker shall be permitted to conduct troubleshooting and repair tasks on de-energized equipment only.
  - **Level 3** – At <600 Volts, live work tasks can be performed. This shall include testing presence and values of voltage and current, as well as troubleshooting and repair of energized devices as necessary, while adhering to limitations of [Attachment 1](#) (establishing protective boundaries) and [Attachment 3](#) (wearing the proper PPE).
  - **Level 4** – Qualified for work above 600 volts.

- **Qualified Person** – A qualified person shall be trained and knowledgeable of the construction and operation of equipment or a specific work method and be trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method.
  - (a) Such persons shall also be familiar with the proper use of the special precautionary techniques, personal protective equipment, including arc-flash, insulating and shielding materials, and insulated tools and test equipment. A person can be considered qualified with respect to certain equipment and methods, but still unqualified for others.
  - (b) An employee, who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person shall be considered to be a qualified person for the performance of those duties.
  - (c) Such persons permitted to work within the Limited Approach Boundary of exposed live parts operating at 50 volts or more shall, at a minimum, be additionally trained in all of the following:
    - (1) The skills and techniques necessary to distinguish exposed energized parts from other parts of equipment.
    - (2) The skills and techniques necessary to determine the nominal voltage of exposed live parts.
    - (3) The approach distances specified in Table 130.2(C) and the corresponding voltages to which the qualified person will be exposed.
    - (4) The decision-making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.
- **Racking Breaker** – Racking the breaker from the CONNECT to TEST or from TEST to CONNECT. At or beyond the TEST position the switchgear voltage arc flash hazard from breaker manipulation is removed.
- **Safety Person** – A person assigned to ensure Electrical Safety requirements are being adhered to during work on any energized electrical equipment requiring a work permit.
- **Switchgear** – The combination of electrical disconnects and/or circuit breakers used both to de-energize equipment to allow work to be done and to clear faults downstream.

- **Tag-out Device** – Is a prominent warning device, such as a tag, and its means of attachment, which can be securely fastened to an energy-isolating device to indicate that the energy-isolating device to indicate that the energy isolating device and the equipment being controlled **may not** be operated until the tag-out device is removed.
- **Un-Qualified Person** – Unqualified persons shall be trained in and be familiar with any of the electrical safety related practices that might not be addressed specifically by Chapter 1, but are necessary for their safety.
- **Zero Energy Check** – Performance of a “live/dead/live” check by the worker to ensure, that equipment to be worked on or near has no electrical energy that could cause injury. A “live-dead-live” check will test the meter on a known live source, perform necessary checks and test the meter again on a known live source.
- **Working Distance** – The dimension between the possible arc point and the chest of the workers positioned in place to perform the task. The default distance is 18 inches based on the employee’s normal reach capability. (average distance elbow to the end of hand)

#### 4.0 RESPONSIBILITIES

- **Plant Supervisor or Qualified Designee:**
  - Adherence to OSHA Standards and NFPA 70E.
  - Monitors electrical safety practices of personnel.
  - Ensures only qualified personnel are assigned to perform work on or near exposed electrical equipment.
  - Ensures adequate personal protective equipment and tools are used.
  - Determines if a pre-job inspection/walk-down of the work area is required.
  - Ensures pre-job brief is performed.
  - Approves precautions for work on, or near, energized circuits.
  - Reviews and approves PPE requirements, or compensatory measures.
  - Performs Job Hazard Analysis when required.
  - Performs other risk assessments when required.
  - Maintain list of employees specifying various competency levels.
  - Maintain and make available all wiring diagrams applicable to task.
- **Qualified Worker:**
  - Adherence to OSHA Standards and NFPA 70E.
  - Understands requirements and limitations of each Clearance Level.
  - Understands all attributes of the task to be performed.

- Knows voltages that will be present on or near, equipment to be operated.
- Performs Zero Energy Checks on equipment expected to be de-energized.
- Selects appropriate PPE. Inspects and tests PPE prior to each task.
- Erects barriers/postings in work areas if needed.
- Ensures test equipment is properly rated and set to appropriate scale.

## **5.0 PREREQUISITES**

- Ensure personnel assigned to perform work on or near exposed electrical equipment are qualified to appropriate PPE level in relation to assigned task.
- Ensure a pre-job brief is performed for work on energized equipment.
- Ensure any work approvals, hazard analyses, and risk analyses are performed as necessary.
- Ensure electrical safety equipment and tools are available for the task.
- Ensure equipment and tools are correctly rated and have been tested as required.
  - Rubber gloves
  - Rubber blankets or insulation
  - Test equipment
  - Insulated tools
- Individuals trained to perform First Aid & CPR will be available in accordance with OSHA Standard 29 CFR 1910.151.
- Ensure Global Water Lockout / Tag-out Procedures are performed.

## **6.0 PRECAUTIONS AND LIMITATIONS**

- Some equipment may have postings that define the electrical safety Hazard Category and PPE requirements based on Arc Flash Calculations. The posting may be more or less restrictive than those defined in the Arc Flash Protection Attachments. The equipment specific local postings take precedence over the Hazard Category and PPE determination of the Arc Flash Protection Attachments. Employees shall adhere to the Hazard Category and PPE determination of the local postings.

## **7.0 TOOLS AND EQUIPMENT**

- **Hand Tools and Test Equipment per ASTM, ANSI, UL and NFPA 70E**
  - All electrical hand tools will be inspected by the user prior to use.
  - No electrical hand tool that is considered unsafe will be used until repaired. Any tool which is not working properly will be repaired and tested prior to re-issue or discarded.
  - Rubber mats, blankets, live line tools, and hand tools shall be rated for the voltage and energy level.
  - Tools used for work on energized electrical equipment shall be insulated and provide adequate protection for the voltages present.
  - Tools should be inspected prior to use to ensure no breaks in the insulation.
    - Test Equipment shall be properly rated and used correctly.
    - Verify test meters/devices are rated for the appropriate voltage.
    - Visually inspect equipment and test leads for damage prior to use.
    - Ensure test equipment is used on the proper setting and scale.
    - Ensure test leads are secure and connected to correct points on test equipment.
    - Perform “live-dead-live” checks and voltage checks on both AC and DC scales of test instruments where the possibility of both voltages being present exists.
- **Rubber Gloves (Table #1)**
  - Rubber gloves shall be properly rated. The following table indicates voltage rating for each class glove:

<b>CLASS OF GLOVE</b>	<b>RATING IN VOLTS</b>	<b>REQUIRED COLOR</b>
00	500	White or Blue
0	1,000	Red or Yellow
1	7,500	Black
2	17,000	Black
3	26,500	Black
4	36,000	Black

- Each person is responsible for the maintenance, inspection and air testing of rubber gloves prior to use.



- Rubber gloves shall be periodically tested by a Test Laboratory or replaced. The gloves will be stamped with an expiration date. Gloves will not be used beyond the stamped expiration date.
- Rubber gloves are required in situations where inadvertent contact with energized parts is possible. The use of approved insulated tools on 240 Volt equipment exempts the use of gloves unless the worker's hand is exposed to contact with energized parts other than the one being manipulated with the tool.
- Protector gloves need not be used with Class 00 gloves for work less than 150 Volts where small equipment and parts manipulation require unusually high finger dexterity.
- Natural fabric liners may be worn under rubber gloves to absorb perspiration or in cold weather for warmth.
- **Arc Face Shields**
  - Hot surfaces can damage arc face shields. Care should be taken to prevent face shields from contacting hot surfaces.
  - Face Shields worn for protection against potential electrical arc exposure shall be properly rated.
  - Face shields must be replaced if surfaces are scratched and sight is impeded.
- **Flame Resistant Clothing and Flash Suits in Accordance with NFPA 70E**
  - Apparel worn underneath flash suits or flame resistant clothing shall be flame resistant or natural fabric.
  - Apparel must cover areas on the body exposed to a flash not covered by other PPE.
  - Manufacturer's instructions for care and maintenance of Flame Resistant apparel shall be followed.
  - Apparel should not fit tightly. The air gap between layers provides additional protection in the event of a flash.
  - Flash suits can cause heat stress and should not be donned until just before being exposed to the arc flash hazard.
  - Flame resistant clothing that becomes torn or contaminated with oil, grease, or any combustible liquids shall not be worn for flash protection.

- Personal Contamination clothing worn inside the RCA shall be 100% cotton or natural fabric if potential exists for exposure to electrical arc or flame. OREX fabric clothing does not meet the requirements of natural fabric.
- Clothing made from fabric such as acetate, nylon, polyester, rayon, either alone or blends shall not be used for working on or near exposed energized equipment.

## 8.0 INSTRUCTIONS

- **General Requirements**

- Electrical equipment and lines shall be considered energized until verified de-energized by performance of a zero energy check.
- Switchgear shall be de-energized prior to performing work involving removal of protective barriers which will expose bus work or energized parts, unless suitable means are provided for personnel protection.
- Qualified personnel shall not approach or take conductive object closer to live parts than the restricted approach boundary unless the person is insulated from the live part and no un-insulated part of the qualified person's body enters the prohibited boundary **OR** the live part is insulated from the qualified person and from any other conductive object at a different potential.
- Energized parts to which an employee might be exposed are put into an electrically safe work condition before working on or near them. Exceptions include:
  - Process Control Applications
  - Alarm Systems
- Establishing a physical barrier for flash protection boundaries ***shall be considered*** when performing activities such as the following:
  - Racking in/out breakers <600 Volts
  - Work on or near (within Limited Approach Boundary) of exposed energized parts <600 Volts
  - Equipment manipulations where failure of equipment could occur
- Physical barriers such as tape and signs shall be established for work on energized electrical equipment greater than 600 Volts. The boundary will be placed at the farthest approach boundary distance. The Safety Person may serve the purpose of the barrier for work of short duration.
- Boundaries should remain in place as long as a shock/flash hazard exists.

- Once a determination has been made that there is no electrical hazard present, with zero energy checks, static discharges, clearances, etc., workers may remove their electrical safety PPE.
- All personnel will wear appropriate personal protective equipment prior to entering a boundary.
- Remove metal and jewelry, including rings, watches, earrings, necklaces, etc. and other conductive items.
- Restrain badges/lanyards by taping or clipping them to the worker's clothing to prevent the metal ring from contacting an energized source.
- When head position is in close proximity to exposed, energized equipment, remove metal framed glasses or wear a non-conductive face shield/safety glasses over them. Restrain metal frame glasses from falling into equipment.
- A minimum of two qualified personnel are required for work within a restricted approach boundary of exposed energized equipment operating at 600 volts or more unless a designated safety person is assigned.  
Ex: (racking breakers, installing/removing MCC buckets).
- For personnel to work on, or near exposed energized circuits >50 Volts the Electrical Safety Permit, [Attachment 4](#), must be used; except for work performed by an employee related to racking breakers, troubleshooting, and voltage measurements. Not using Attachment 4 does not alleviate the employee from meeting the PPE requirements contained in this procedure or on local postings.
- Personnel operating circuit breakers or disconnect devices, open or closed, on an energized bus, shall stand clear to one side, preferably on the hinged side, when practical.
- Arc Protective Apparel is not required for removal of installed temporary grounds.
- When two or more personnel are working on energized equipment and are within reach of each other, they shall not work on different phases or voltage potentials at the same time.
- If the worker encroaches on the Default Boundary then proper PPE is required per [Attachment 2](#) and [Attachment 3](#).
- Extension cords and cables may not be used in place of permanent wiring.
- The following equipment is required when performing core bore drilling:
  - Electrical drill stops (except when cutting of rebar is required).
  - Rubber mat for worker to stand on when performing the drilling evolution.
  - In addition to the items listed above, heavy duty insulated electrical gloves and rubber insulated boots should be utilized when conditions warrant.

## 9.2 Work on Station Batteries

- If any maintenance, testing or repair work is to be done inside any UPS unit or battery cabinet, the unit needs to be completely shut down. This includes both AC and DC power. If the protected equipment needs to be operational during the preventative maintenance, a bypass switch in the unit should be operated. If no bypass switch exists, then unit must be shut down.
- Do not smoke or create sparks, arcs, or flames in battery areas. If a device is used that produces significant heat or spark, atmospheric monitoring shall be done during the work activity to ensure an explosive atmosphere does not develop.
- Use approved insulated hand tools and the removal of all conductive jewelry.
- Use extreme caution when carrying or using conductive materials around batteries. If a conductor inadvertently makes contact across battery terminals, an arc flash or explosion could occur.
- To prevent shocks, avoid physical contact with exposed conductors on batteries.
- Class 00 or better rubber gloves with leather protectors should be worn when working on exposed conductors or bus energized at >50 volts (example: torquing bus work and hooking up load banks).
- Do NOT remove vent plugs from cells, unless specific maintenance work is being performed. Reinstall vent plugs after work is completed.
- Before performing battery related tasks, verify availability and functionality of an eye wash station.
- VERIFY ventilation in the battery room is in service or other ventilation is present, especially during battery equalization charge and discharge.
- VERIFY spill kit is available in area in case of acid spills when handling electrolyte.
- Rubber latex type gloves, aprons over 100% natural fabric clothing, and chemical face shield shall be worn when:
  - Adding water, unless a spill proof container is used
  - Adding/removing electrolytes
  - Moving/handling battery cells
  - Checking specific gravity unless splash proof hydrometer is used
  - Washing/cleaning batteries
- Safety glasses with side shields shall be used to read cell battery voltage or adjust inter-cell connecting hardware.

[\(RETURN TO INDEX\)](#)

**ATTACHMENT - 1  
APPROACH BOUNDARIES**

<b>APPROACH BOUNDARIES FOR SHOCK PROTECTION</b>			
<b>NOMINAL SYSTEM VOLTAGE RANGE</b>	<b>LIMITED APPROACH BOUNDARY</b>	<b>RESTRICTED APPROACH BOUNDARY (Note 1)</b>	<b>PROHIBITED APPROACH BOUNDARY</b>
<b>PHASE TO PHASE</b>	<b>EXPOSED FIXED CIRCUIT PART</b>	<b>INCLUDES INADVERTENT MOVEMENT</b>	
0 to 50	N/A	N/A	N/A
51 to 300	3ft. 6 in.	Avoid contact	Avoid contact
301 to 750	3 ft. 6 in.	1 ft. 0 in.	0 ft. 1 in.
751 to 15 KV	5 ft. 0 in.	2 ft. 2 in.	0 ft. 7 in.
15.1 to 36 KV	6 ft. 0 in.	2 ft. 7 in.	0 ft. 10 in.

**Flash Default Boundary** – Being used in these procedures in lieu of Flash Hazard Analysis. **A default distance of 4-feet will be used unless otherwise calculated.**

**Note 1 - Shock Protection Boundary** – When crossing within the restricted approach boundary approved rubber insulated PPE must protect that part of the body.

**TASKS SAFETY LEVELS**

**ATTACHMENT 2  
VARIOUS TASKS & ASSOCIATED PPE REQUIRED  
NFPA 70E 130.7 ( C )( 9 )( a )**

**Certain tasks listed in Attachment #2 have PPE requirements which are intended to be above and beyond the requirements set forth in NFPA 70E.**

Panel boards Rated 240 Volts and Below – Note 1

	PPE Level	V-rated Gloves	V-rated Tools
• Circuit breaker or fused switch operation with covers on.	Note 5	Y	N
• Circuit breaker or fused switch operation with covers off.	Note 5	Y	N
• Work on energized parts, including voltage testing.	1	Y	Y
• Remove / install Circuit breakers or fused switches.	1	Y	Y
• Removal of bolted covers to expose bare energized parts.	1	N	N
• Opening hinged covers to expose bare energized parts.	0	N	N

Panel boards or Switchboards  
Rated >240 Volts and < 600 Volts with molded case or insulated case  
Circuit breakers  
Note 1

	PPE Level	V-rated Gloves	V-rated Tools
• Circuit breaker or fused switch operation with covers on.	Note 5	Y	N
• Circuit breaker or fused switch operation with covers off.	1	Y	N
• Work on energized parts including voltage testing.	2*	Y	Y

**ATTACHMENT - 3**  
**Protective Clothing and Personal Protective Equipment (PPE)**

<b>Protective Clothing and Personal Protective Equipment (PPE) NFPA 70E 130.7 (C) (10)</b>						
<b>Protective Clothing and Equipment</b>	<b>Hazard / Risk Level and Associated PPE</b>					
	-1	0	1	2	3	4
<b>Base Layer Clothing</b>	<b>Note 3</b>					
Tee Shirt - Short Sleeved	X			X	X	X
Long Sleeved Shirt		X				
Long Pants	X	X	X Note 4	X Note 6	X	X
<b>FR Clothing - Note 1</b>						
Long Sleeved Shirt			X	X	X Note 9	X
Pants			X Note 4	X Note 6	X Note 9	X
Coverall			Note 5	Note 7	X Note 9	Note 5
Jacket, Parka, or Rainwear			AN	AN	AN	AN
<b>FR Protective Equipment</b>						
Flash Suit Jacket – Multilayer						X
Flash Suit Pants – Multilayer						X
Hard Hat			X	X	X	X
FR Hard Hat Liner					AR	AR
Safety Glasses	X	X	CHOOSE ONE	CHOOSE ONE	CHOOSE ONE	CHOOSE ONE
Safety Goggles						
Arc rated face shield or flash suit hood			X Note 8	X Note 8		
Flash Suit Hood					X	X
Hearing Protection - Ear Canal Inserts				X Note 8	X	X
Leather Gloves - Note 2			AN	X	X	X
Leather Work Shoes			AN	X	X	X

**Attachment - 4**  
**Energized Electrical Work Permit**

**PART I: TO BE COMPLETED BY THE REQUESTER:**

(1) Description of circuit/equipment/job location:

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(2) Description of work to be done:

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(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

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Requester/Title

---

Date



**PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:**

Check when

Complete

(1) Detailed job description procedure 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 personnel 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)

---

Person Performing Work

---

Date

---

Person Performing Work

---

Date

**PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:**

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Plant Supervisor

---

Electrically Knowledgeable Person

---

Risk Management

---

Date

Note: Once the work is complete, forward this form to the Risk Management Department for review and retention.

**Attachment - 5**  
**Deviation Control Plan**

Implementer:	Date/Duration:
Location/Tag Number:	Work Order #
Work Scope/Exposure Source:	
Applicable Flash/Shock Protection Controls:	
Deviation Plan:	Basis For Deviation:
Lessons Learned/OE:	
Approval: Superintendent/Designee:	

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

### **1.0 Purpose**

The Company has developed guidelines to protect employees working with and around asbestos-containing materials and to comply with United States Occupational Safety standards.

### **2.0 Scope**

The Company designed this procedure for all its operating companies.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

### **4.0 Definitions**

**Asbestos-Containing Material (ACM)** – Any material containing more than one percent asbestos. Asbestos includes Chrysotile, Amosite, Crocidolite, Tremolite, Anthophyllite, Actinolite and any of these minerals that have been chemically treated and/or altered.

**Class I Asbestos Work** – Activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM and Presumed Asbestos-containing Material (PACM).

**Class II Asbestos Work** – Activities involving the removal of ACM which is not thermal system insulation or surfacing material with the intention to dispose. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

**Class III Asbestos Work** – Repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

**Class IV Asbestos Work** – Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

**Competent Person** – In addition to the definitions in 29 CFR 1926.32 (f), competent person for asbestos activities is defined as one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work that is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

**Decontamination Area** – An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

**Disturbances** – Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

**Equipment Room (Change Room)** – A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

**Excursion Limit** – Employee exposure to an airborne concentration of 1.0 fiber per cubic centimeter of air (f/cc) as averaged over a sampling period of thirty minutes.

**Presumed Asbestos-Containing Material (PACM)** – Thermal system insulation and surfacing material found in buildings constructed no later than 1980.

**Permissible Exposure Limit (PEL)** – Employee exposure to an airborne concentration of 0.1 fibers per cubic centimeter of air as an eight hour time-weighted average (TWA).

**Regulated Area** – An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

### **5.0 Requirements**

All project scopes of work will be evaluated and a determination made if employees have the potential to contact or disturb ACM. This information will be considered during the development of the work plan. Also, the specific State requirements will be determined. The State organization such as the Department of Labor or Health can be contacted in order to evaluate requirements such as licensing not included in the OSHA regulations.

Qualified company employees may conduct Class III or Class IV asbestos work. All Class II and Class I asbestos work will be performed by a qualified subcontractor in accordance with OSHA and State or other specific organizations.

### **5.1 Air Monitoring**

#### **Initial Exposure Assessment**

For work performed by company employees, The Company will designate a competent person to assess exposures before or as work begins to determine expected employee exposures to airborne fibers.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

### **5.2 Negative Exposure Assessment**

When possible, the Company will evaluate potential employee exposures and show that exposure will be below the PEL by performing a negative exposure assessment and confirming it by the following:

- “Historical data” from prior air monitoring for similar jobs performed within 12 months of the current job and obtained during work operations performed under similar conditions.
- “Objective data” demonstrating an ACM or activities involving it cannot release airborne fibers in excess of the permissible exposure limit or excursion limit.
- Employees’ training and experience were no more extensive for previous jobs than training for current employees.
- Data that shows a high degree of certainty that employee exposure will not exceed the permissible exposure limit and excursion limit under current conditions.
- Current initial exposure monitoring using breathing zone air samples representing the 8-hour TWA and 30 minute short term exposures for each employee in those operations most likely result in exposures for each employee in those operations most likely to result in exposures over the PEL for the entire asbestos job.

### **5.3 Exposure Monitoring**

The Company will assess employee exposures from breathing zone air samples representing the 8-hour TWA and 30-minute short-term exposures. Exposure monitoring will be representative of similar projects and/or operations.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

### **5.4 Additional Monitoring**

The Company will conduct additional monitoring when changes in processes, control equipment, level of personnel experience, or work practices could result in exposures above the PEL or EL (regardless of a previous negative exposure assessment for a specific job).

### **6.0 Medical Surveillance**

Employees engaged in Class III asbestos work more than 30 days each year will be medically evaluated in accordance with 29 CFR 1910.1001 or 29 CFR 1926.1101. Employees engaged in Class III work less than 30 days per year but required to wear a respirator or engaged in Class IV asbestos work and required to wear respirators will be medically evaluated in accordance with 29 CFR 1910.134 Respiratory Protection and the Global Water Resources Respiratory Protection procedure.

### **7.0 Training**

#### **7.1 Class III Asbestos Work**

A competent person will evaluate the proposed scope of work activities and determine the training requirements. A competent person will conduct training that may range from 4 to 16 hour's duration including a hands-on portion covering the planned work practices. The training will be equivalent in curriculum and method to the 16-hour "Operations and Maintenance" course developed by the United States Environmental Protection Agency (USEPA) for maintenance and custodial workers whose work disturbs ACM. Training will be conducted before work begins, and annually thereafter.

#### **Training will include:**

- Methods of recognizing asbestos.
- The health effects associated with asbestos exposure.
- The nature of operations that could result in exposure to asbestos and the importance of controls and proper work practices to minimize exposure.
- Waste disposal procedures.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

### **7.2 Class IV Asbestos Work**

A competent person will conduct a minimum 2 hour training session for employees engaged in Class IV work. Training will be equivalent in curriculum and method to the USEPA awareness training and will focus on the locations of ACM or PACM and the ways to recognize damage and deterioration and how to avoid exposure. Training will be conducted before work begins, and annually thereafter.

### **8.0 General Asbestos Awareness**

All employees performing work in areas where ACM is located will be trained on the general hazards of asbestos, its location, and planned work practices to eliminate the chance for contact or disturbance of the ACM. This training will be conducted for every project involving ACM.

### **8.1 General Work Practices and Control Measures**

For all Class III and IV work, employees will use the following work practices and control measures to reduce the potential for release of asbestos fibers:

- Vacuum cleaners equipped with HEPA filters to collect all asbestos containing or presumed asbestos-containing debris and dust
  
- Wet methods or wetting agents to control employee exposures
  
- Prompt clean-up and disposal (by others) in leak-tight containers of asbestos-contaminated wastes and debris
  
- Establishment of regulated areas
  
- Local ventilation when feasible
  
- Impermeable drop cloths and mini-enclosures, glove bag systems, or other isolation methods for drilling, cutting, abrading, sanding, chipping, breaking, or sawing thermal system insulation or surfacing materials
  
- Respiratory protection unless a negative exposure assessment or air monitoring in accordance with 29 CFR 1926.1101 indicates employee exposures are expected to be below the PEL

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ASBESTOS CONTAINING MATERIALS**

### **8.2 Asbestos Cement Pipe**

- The purchase and installation of asbestos cement pipe (AC) for our Company has been discontinued. Company employees' are required periodically to perform work functions for AC still in the ground, such as cutting, machining, hole cutting, tapping, removing couplings and disposing of pieces of the pipe. Qualified contractors who work for Global Water Resources are also required to perform the same work functions. Contract documents specifically identify the presence of AC pipe and indicate that the contractor is responsible for associated worker safety, regulatory compliance, handling and disposal measures.

- Historical and objective data collected by our operating companies indicate that employee exposure to airborne asbestos fibers is minimal when engaged in work activities with the asbestos cement pipe. Field measurements of the work place environment show that exposures are below the Federal OSHA Permissible Exposure Limit (PEL) of 0.1 fibers/cubic centimeter of air measured as an eight (8) hour time-weighted average (TWA), Federal OSHA Standard 29 CFR 1910.1001– asbestos, tremolite, anthophyllite and actinolite.

- To ensure that state and federal OSHA standards are met, Global Water Resources has compiled employee exposure data from work place air monitoring.

- If a negative exposure assessment cannot be provided or developed, then the work procedures are to be in accordance with the directives of the appropriate State or Federal OSHA agency. They generally are those required by the Federal OSHA Standard 29 CFR 1910.1001 or 29 CFR 1910.1001– asbestos, tremolite, anthophyllite and actinolite.

# **HEALTH & SAFETY PROCEDURES MANUAL**

# **ASBESTOS CONTAINING MATERIALS**

## **9.0 Control Methods**

The Company will use the following work procedures to control employee exposure to asbestos fibers while employees are working with asbestos cement pipes. Work includes cutting, machining, tapping, repairs and removal of the pipe.

- Use of water spray suppression system when working with asbestos cement pipe or any other manufacturer's approved method for keeping the pipe wet.
- Use of carbide blade cutters.
- Use of snap cutters.
- Use of pressure or "wet" tapping machines.
- Follow prescribed procedures specific to the work.
- Prompt disposal of asbestos wastes.

**Note:** Power driven saws with abrasive discs (masonry blades) must not be used for cutting or beveling asbestos cement pipe. Use of power-driven abrasive disc-sanders for shaping or beveling asbestos cement pipe is also prohibited.

## **10.0 Disposal**

Achieve disposal of asbestos materials in one of the following ways:

- Retire in place long lengths of asbestos cement pipe.
- When repairs or tapping are performed, bury the asbestos material (chips, cuttings, broken pies of pipe and up to one joint of pipe) with the pipeline or place them in impervious sealed bags or containers and dispose of them at an approved landfill. Containers are to be labeled in accordance with the regulations.
- Place asbestos materials (resulting from work performed, for example) at Global Water Resources stockyard in impervious sealed bags or containers and dispose of them at an approved landfill. Containers are to be properly labeled.

# **HEALTH & SAFETY PROCEDURES MANUAL**

# **ASBESTOS CONTAINING MATERIALS**

## **Respiratory Protection and Protective Clothing**

Respirators and protective clothing will be used during:

- All Class III and IV work without a negative exposure assessment
- All Class III work not using wet methods
- All Class III work where ACM or PACM is cut, abraded, or broken
- All Class IV work within a regulated area where respirators are required
- All work where employees are exposed above the PEL or EL
- Emergencies

A minimum half-face air-purifying respirator and Tyvek-type clothing (whole body clothing, head coverings, gloves, and foot coverings) will be used for the above work.

## **Hygiene Facilities**

When applicable, an equipment area will be established adjacent to the regulated area for the decontamination of employees and their equipment when possible. The area will be covered by an impermeable drop cloth on the floor or horizontal work surface and will be large enough to accommodate equipment cleaning and personal protective equipment removal without spreading contamination beyond the area. Before removing work clothing, employees will clean it with a HEPA vacuum. All equipment and the surfaces of containers filled with ACM will be cleaned before removal from the area. All employees will enter and exit the regulated area through the equipment room.

## **Recordkeeping**

The Company keeps records of the following:

- All measurements taken to monitor employee exposure to asbestos (retain for at least 30 years).
- All objective data used to support a decision that asbestos is not capable of being released at levels at or above the Federal OSHA Action Level under the expected conditions of use or handling (retain permanently).
- All training records (retain permanently with the employee's personnel file).

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# **HEALTH & SAFETY PROCEDURES MANUAL**

# **BLOOD BORNE PATHOGENS**

## **BLOOD BORNE PATHOGENS**

### **1.0 Purpose**

This Blood-borne Pathogen Procedure has been developed in accordance with OSHA Standard 29 CFR 1910.1030 and establishes an exposure control plan to minimize the risks associated with exposure to blood-borne pathogens for Global Water Resources employees, particularly those who perform first aid or work in wastewater treatment.

### **2.0 Scope**

This plan has been written for employees of Global Water Resources who may reasonably anticipate skin, eye, or mucous membrane contact with blood or other potentially infectious materials.

### **3.0 Responsibilities**

Supervisors, with assistance from Operational Management, will:

- Identify job classifications and/or tasks that place a Global Water Resources employee at risk of occupational exposure to blood, body fluids and other potentially infectious material (Refer to [Job Safety Analysis - Risk Assessment Procedure](#));
- Offer the Hepatitis B Vaccine at no cost to all occupationally exposed employees;
- Assist the operating systems in the identification of engineering and work practice controls to reduce the risk of occupational exposure to blood, body fluid and other potentially infectious material;
- Assist in the identification of appropriate personal protective equipment and its use; and
- Assist in the identification of appropriate housekeeping and spill clean up procedures.

## **HEALTH & SAFETY PROCEDURES MANUAL BLOODBORNE PATHOGENS**

## 4.0 Definitions

**Blood-borne Pathogens** – pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).

**Contaminated** – the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

**Contaminated Sharps** – any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, and barbed wire.

**Decontamination** – the use of physical or chemical means to remove, inactivate, or destroy blood-borne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

**Engineering Controls** – controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the blood-borne pathogens hazard from the workplace.

**Exposure Incident** – a specific eye, mouth or other mucous membrane or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee's duties.

**Hand washing Facilities** – a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

**HBV** – hepatitis B virus.

**HIV** – human immunodeficiency virus.

**Occupational Exposure** – a reasonably anticipated skin, eye or mucous membrane contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

**Parenteral** – piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts and abrasions.

# HEALTH & SAFETY PROCEDURES MANUAL

## BLOODBORNE PATHOGENS

**Personal Protective Equipment** – specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouse) not intended to function as protection against a hazard is not considered to be personal protective equipment.

**Regulated Waste** – liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state.

**Source Individual** – any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

**Sterilize** – the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

**Universal Precautions** – is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other blood-borne pathogens.

**Work Practice Controls** – controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

## **5.0 Exposure Control**

Each Global Water Resources operation, having an employee(s) with occupational exposure, will establish a written Exposure Control Plan designed to eliminate or minimize employee exposure. The plan will contain the following:

### **5.1 Exposure Determination**

The exposure determination will consist of:

- A list of all job classifications in which all employees in those job classifications have occupational exposure;
- A list of job classifications in which some employees have occupational exposure; and

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **BLOODBORNE PATHOGENS**

- A list of tasks and procedures or groups of closely related tasks and procedures in which occupational exposure occurs and that are performed by employees in the job classifications listed.

## **5.2 Methods of Compliance**

Use engineering and work practice controls to eliminate or minimize employee exposure. Where occupational exposure remains after the institution of these controls, personal protective equipment will be used.

Ensure employees wash their hands or exposed skin with soap and water immediately, or as soon as feasible, after removal of gloves or other personal protective equipment. In addition, mucous membranes should be flushed with water immediately, or as soon as feasible, following contact of such body areas with blood or other potentially infectious materials.

## **5.3 Precautions for Employees**

All employees identified as having potential occupational exposure to infectious material, will be offered the Hepatitis B vaccine, at no charge, within ten (10) days of initial assignment. Employees, who initially decline the vaccine, must sign a Waiver of Declination.

Employees who initially decline, but later wish to have the vaccine administered, may do so at no charge to the employee. The vaccine will be administered by a qualified health care professional.

Those who wish to take the vaccine will receive the recommended dosage in a three dose regimen. The second and third doses should be separated by an interval of at least two months.

## **5.4 Post-Exposure Evaluation and Follow Up**

Following a report of an exposure incident, the infected individual will be immediately provided with a confidential medical evaluation and follow-up, including at least the following elements:

# **HEALTH & SAFETY PROCEDURES MANUAL** **BLOODBORNE PATHOGENS**



- Documentation of the routes of exposure, and the circumstances under which the exposure incident occurred;
- Identification and documentation of the source individual unless that identification is infeasible or prohibited by state or local law; and
- The source individual's blood will be tested, as soon as possible and after consent is obtained in order to determine HBV and HIV infectivity.

Results of the source individual's testing will be made available to the exposed employee and the employee will be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

Post-exposure preventative Hepatitis B Vaccination will be offered. Global Water Resources will ensure that a copy of this policy is supplied to the exposed employee.

The exposed employee's blood will be collected as soon as feasible and tested after consent is obtained.

Exposure control plans must be updated annually.

## **6.0 Information Provided To The Healthcare Professional**

Post-exposure preventive Hepatitis B Vaccination will be offered. The Company will ensure that a copy of this policy is supplied to the exposed employee. After an exposure incident, Global Water Resources will provide the designated healthcare facility with the following information:

- A description of the exposed employee's duties as they relate to the exposure incident;
- Documentation of the route(s) of exposure and circumstances under which exposure occurred; and
- All medical records relevant to the appropriate treatment of the employee including vaccination status.

# **HEALTH & SAFETY PROCEDURES MANUAL** **BLOODBORNE PATHOGENS**

Within 15 days of the evaluation, the employee will be provided with a copy of the evaluating healthcare professional's written opinion.

The healthcare professional's written opinion for the Hepatitis B vaccination will be limited to whether the vaccination is indicated for the exposed employee and if that employee has already received such vaccination.

The healthcare professional's written opinion for post-exposure evaluation and follow-up will be limited to the following information: that the employee has been informed of the results of the evaluation and of the conditions resulting from exposure to blood and other potentially infectious materials which require further evaluation or treatment.

All other findings or diagnoses will remain confidential and will not be included in the employee's personnel record.

## **7.0 Clean-Up And Safe Housekeeping**

- After a blood-borne accident, clean the entire area with a disinfectant (use 1 part household bleach to 10 parts water).
- Disinfect spill cleaning equipment.
- If you are cleaning up after a blood-borne accident, wear gloves, apron, and goggles.
- Restrict access to the area.
- Use disposable towels and dispose of used towels properly.
- Be alert for sharp objects.
- Treat all blood and body fluids as potentially infectious.
- Skin protects from pathogens; however, cuts, dermatitis, chapping, and small cracks in the skin can potentially allow germs to enter the body.
- First Aid – use gloves or other PPE, have as little contact as possible with blood or body fluids.
- Wash hands with antibacterial soap after contact.

Barricade, mark or section off any area that contains spilled blood or body fluid until it can be cleaned and decontaminated. The spill should be cleaned up as soon as possible and always before returning to regular duties.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **BLOODBORNE PATHOGENS**

All individuals who are assigned with first aid responsibilities will be offered the opportunity to receive the Hepatitis B vaccine.

Acts considered to be “Good Samaritan Acts” are not covered by this regulation. An example of a Good Samaritan Act is removing a co-worker from immediate danger.

All contractors with individuals assigned with first aid responsibilities on the job will follow their organization’s policies, procedures and training relating to blood-borne pathogens.

## **8.0 Recordkeeping**

Records required by the OSHA Standard will be maintained in accordance with 29 CFR 1910.1030(h) (1). Training Records will include the dates of the training, contents of the program, name and qualifications of the trainer, and the names and job titles of participants.

All exposure incidents will be investigated and documented. [The Post Exposure Checklist](#) will be used as a tool to document specific requirements to conform to this policy.

## **9.0 Training Requirements**

Prior to their initial assignment to “at risk” work, potentially exposed employees will be trained in the following:

- OSHA Standard for Blood-borne Pathogens 29 CFR 1910.1030.
- Diseases that can affect a large group of people (epidemiology), and the symptoms of blood-borne diseases.
- Modes of transmission of blood-borne pathogens.
- Global Water Resources Exposure Control Plan providing lines of responsibility.
- PPE requirements.
- Post-Exposure evaluation and follow-up.
- Pertinent signs and labels.
- Hepatitis B vaccine program.

Training records are kept for a period of three years, in accordance with 29 CFR 1910.1030.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHAINS, HOISTS, & SLINGS**

## **1.0 Purpose**

The purpose of this standard operating procedure is to define safe operating practices when chains, hoists, and slings are used within the Company operations and to reduce or eliminate the possibility of personal injury and property damage.

## **2.0 Scope**

This procedure applies to all employees and contractors involved in material handling equipment and/or materials movement by hoisting. The types of slings covered are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope and synthetic web.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all employees using chains, hoists and slings in a safe manner in accordance with this procedure, manufacturer's recommendations, and applicable local, state and federal regulations. Supervisors also have the responsibility to assure that equipment used is in good operating condition.

### **3.2 Employees**

Employees are responsible for complying with this procedure and using chains, hoists and slings in a safe manner. Employees must immediately report unsafe conditions or damaged equipment to their supervisors.

## **4.0 Procedure**

- Only trained employees will use chains, hoists and slings for material/equipment lifts and handling.
- Inspect all slings before each use.
- Inspect all fastenings and attachments before each use.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHAINS, HOISTS, & SLINGS**

- Do not use slings that are damaged or defective.
- Do not shorten slings with knots or bolts or other makeshift devices.
- Do not kink sling legs.
- Do not load slings in excess of their rated capacities.
- Securely attach slings to their loads.
- Pad or protect slings from sharp edges of their load.
- Keep suspended loads clear of all obstructions.
- Keep all employees clear of loads about to be lifted and clear of suspended loads.
- Use tag lines to control heavy loads.
- Do not pull a sling from under a load when the load is resting on the sling.
- Do not place hands and fingers between the sling and its load while the sling is being tightened around the load.
- Equip all hooks on any hoist with a working safety latch/gate.
- Evaluate hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or hooks that are twisted more than 10 degrees out of alignment before use to determine if they are safe for the intended load.
- Label all cranes, hoists, lifting beams and beams with the rated capacity.
- Prior to initial use, test all new and altered cranes to insure compliance with the following functions: hoisting and lowering, trolley travel, bridge travel, and limit switch operation.
- Document and file any and all tests, repairs, and preventive maintenance activities for all overhead cranes.
- Never leave a load suspended in the air.
- Do not use a regular chain for hoisting. Only use a rated hoisting chain.
- Do not use a chain as a sling.
- The original manufacturer must repair links that are twisted, bent or damaged.
- Inspect all chains for cuts, chips, dents, and stretching.
- Do not use nylon web slings where fumes, vapors, sprays, mists or liquids of acids or phenolics are present.
- Do not use polyester and polypropylene web slings where fumes, vapors, sprays, mists or liquids if caustics are present.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **CHAINS, HOISTS, & SLINGS**

- Do not use web slings with aluminum fittings where fumes, vapors, sprays, mists or liquids if caustics are present.
- Immediately remove synthetic web slings 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.
- Install all U-bolt clips on hoist ropes on overhead and gantry cranes so that the U-bolt is in contact with the dead end (short or non-load carrying end) of the rope. Install clips in accordance with clip manufacturer’s recommendation. Tighten all nuts on newly-installed clips after 1 hour of use.

NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS			
Improved Plow Steel, Rope Diameter (inches)	NUMBER OF CLIPS		Minimum Spacing (inches)
	Drop Forged	Other Material	
1/2 (1.27 cm)	3	4	3 (7.62 cm)
5/8 (.625 cm)	3	4	3-3/4 (8.37 cm)
3/4 (.75 cm)	4	5	4-1/2 (11.43 cm)
7/8 (.875 cm)	4	5	5-1/4 (12.95 cm)
1 (2.54 cm)	5	6	6 (15.24 cm)
1-1/8 (2.665 cm)	5	6	6-3/4 (15.99 cm)
1-1/4 (2.79 cm)	6	7	7-1/2 (19.05 cm)
1-3/8 (2.915 cm)	7	7	8-1/4 (20.57 cm)
1-1/2 (3.81 cm)	7	8	9 (22.86 cm)

## 5.0 Training

The supervisor will ensure that employees are trained, understand and follow the proper procedures for of chains, hoists and slings used in the workplace.

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# HEALTH & SAFETY PROCEDURES MANUAL

## CHEMICAL HYGIENE PLAN

## **1.0 Purpose**

The purpose of this standard operating procedure is to define safe operating practices in laboratories within Global Water Resources operations. These include:

- Protecting employees from the health hazards presented by hazardous chemicals used in the specific workplace, and
- Keeping exposures below the Permissible Exposure Limits (PEL) for OSHA regulated substances. The employer assures that laboratory employees' exposure to such substances does not exceed the permissible exposure limits specified in 29 CFR 1910, Subpart Z.
- The Chemical Hygiene Plan is required to include elements and specific measures that the employer takes to ensure laboratory employee protection in accordance with Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450).

## **2.0 Scope**

The Company has developed guidelines for the safe operation of laboratories.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all employees working in laboratories understand and adhere to these procedures and applicable local, state and federal regulations.

### **3.2 Employees**

Employees are responsible for complying and operating within this procedure and in a safe manner.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHEMICAL HYGIENE PLAN**

#### **4.0 Procedures**

The Chemical Hygiene Plan requires that the routine laboratory activities which could pose employee injury or exposure be performed according to general safety procedures. These include, but are not limited to the following: handling of corrosives, flammable gases, flammable liquids and carcinogens. The individual, however, must accept responsibility for carrying out his or her own work in accordance with good safety practices and should be prepared in advance for possible accidents or incidents by knowing what emergency aids are available and how they are to be used.

#### **5.0 Engineering Controls, Personal Protective Equipment, And Hygiene Practices**

The facility has developed and implemented safety procedures to minimize or eliminate exposure of the hazards associated with the daily operation of routine laboratory procedures. The primary goal of the safety procedures is to prevent accidents and emergencies. These procedures include the proper use of personal protective equipment, well-maintained safety equipment (i.e., vent hoods, safety showers, eyewash stations and fire extinguishers) and scheduled evaluations and inspections of the safety equipment to ensure correct operation and good working condition of this equipment.

#### **6.0 Control Equipment Inspections And Review**

The Chemical Hygiene Plan was developed to include weekly and monthly inspections of the safety systems at the facility to ensure their performance.

These inspections include, but are not limited to the following: adequate ventilation hood performance, safety shower and eyewash station and fire extinguishers.

- Weekly Inspections: Safety Shower – Flush safety showers at least once per week for a minimum of 5 minutes to ensure proper operations and to flush the water lines to the unit. Eyewash Stations – flush the eyewash stations for a minimum of 5 minutes weekly to ensure proper operation and to minimize any potential of bacterial growth in the units. Fire Extinguishers – inspect the fire extinguishers in the laboratory/control building area at least once per week to verify that they have not developed leaks or any indications that they are not in good working condition.
- Monthly Inspections: Vent Hoods – Monitor laboratory vent hoods and record the results to ensure their proper performance. Perform this inspection utilizing an anemometer. If a hood is found to be deficient in its operating capabilities, promptly inspect to identify and correct the problem. The local exhaust systems that are used for specific laboratory equipment also need monitoring prior to their use.

## **HEALTH & SAFETY PROCEDURES MANUAL** **CHEMICAL HYGIENE PLAN**



## **7.0 Employee Information And Training**

The purpose of the Chemical Hygiene Plan is to ensure that all individuals at risk are adequately informed about the hazards in the laboratory, its risks, and what to do if an accident occurs. Some of the elements of the training program include the following; methods of detection; physical and health hazards; protective measures, safe work practices, emergency procedures; and applicable details of the Chemical Hygiene plan. A training file was developed to log the training sessions given to each employee.

## **8.0 Special Or Non-Routine Procedures**

Identify safety procedures describing those laboratory procedures considered special, which would require prior approval by the Plant Supervisor before performing.

## **9.0 Medical Surveillance**

Ensure that the facility provides medical surveillance services at no cost to the employee applicant or the employee. Engage an approved Medical Clinic or physician to perform this service.

The Company provides medical consultation, consistent with the requirements of 29 CFR 1910.1450(g), for all employees who work with hazardous chemicals to have an opportunity to receive medical attention, including follow-up examinations which the examining physician determines to be necessary, under the conditions stated in the cited regulation.

The Company provides the physician available information on the identity of the hazardous chemical(s) to which the employee may have been exposed; a description of the conditions under which the exposure occurred, including exposure data if available; and a description of the signs and symptoms of exposure that the employee is experiencing, if any.

For examinations or consultation performed under regulatory standard 29 CFR 1910.1450(g), Global Water Resources requires a written opinion from the examining physician which includes any recommendation for further medical follow-up; the results of the medical examination and any associated tests; any medical conditions revealed in the course of the examination which may place the employee at increased risk a result of exposure to a hazardous chemical; found in the workplace; and a statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment unrelated to occupational exposure.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHEMICAL HYGIENE PLAN**

## 10.0 Chemical Hygiene Officer

The plant supervisor will assign an individual to serve as the facility chemical hygiene officer and assumes the responsibilities as defined in 29 CFR 1910.1450(b). The major duties of the Chemical Hygiene Officer include:

- Working with administrators and other employees to develop and implement appropriate chemical hygiene policies and practices.
- Monitoring procurement, use, and disposal of chemicals used in the lab.
- Ensuring that workers know and follow the chemical hygiene rules, that protective equipment is available and in working order, and that training has been provided and documented.
- Maintaining appropriate audits and providing regular, formal chemical hygiene, routine housekeeping and emergency equipment inspections.
- Determining the required level of protective apparel and equipment, and promote good personal hygiene habits of the assigned laboratory personnel.
- Knowing the current requirements concerning regulated substances.
- Seeking ways to improve the chemical hygiene plan. Ensuring that facilities and training for use of any material being ordered is adequate.

It is the facility supervisor's responsibility to maintain the Hazard Communication Program (Haz Com), for adhering to the labeling policy, obtaining Material Safety Data Sheets (MSDS) for all new chemicals introduced into inventory, for updating the chemical listing and MSDS files ([see Hazard Communication – Right-to-Know Procedure](#)). It is the Manager's responsibility to require that the Chemical Hygiene Program (CHP) be implemented, provide support, audit the activities of the program, ensure that the written CHP procedures are being carried out, that training is being conducted as required, and that records are being maintained.

## 11.0 Safe Handling Of Particular Hazardous Substances

The facility's safety plan specifies personal protective equipment and procedures required to handle certain hazardous chemicals (i.e., corrosives, flammable liquids, and carcinogens).

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# HEALTH & SAFETY PROCEDURES MANUAL

# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **1.0 Purpose**

This procedure outlines the safeguards taken by plant operators when responding to gaseous chlorine emergencies or other gaseous chemical releases.

## **2.0 Scope**

This procedure applies to all Global Water Resources operations that utilize gaseous chlorine.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed and that plant operators utilize the proper equipment and understand and follow the requirements. Supervisors and management also have the responsibility to ensure that appropriate equipment is available for response activities and that employee training has been provided.

### **3.2 Employees**

Employees are responsible for complying with this procedure.

## **4.0 General Chlorine Information Summary**

Note: See current Material Safety Data Sheet for detailed information.

### **4.1 Appearance Properties and Atmospheric Limits**

- Chlorine is an amber colored liquid. In the gaseous form, it is greenish/yellow in color with a very pungent, irritating odor. Chlorine is much more concentrated (460:1 ratio) in the liquid form than it is as a gas. It is non-flammable but will support combustion. It is classified as both a poison and an oxidizer. Chlorine gas is 2.5 times heavier than air and will tend to settle or "pocket" in low areas.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

- The CAS number is 7782-50-5. The DOT identification number is UN1017. The PEL (permissible exposure limit) is 1 ppm. The TWA (time weighted average, 8 hour exposure period) is also 1 ppm. The STEL (short term exposure limit, 15 minutes) is 3 ppm. Chlorine is immediately dangerous to health and life (IDHL) at 10 ppm.

Spills/releases of >10 pounds must be reported to the National Response Center (800-424-8802).

### **4.2 Health Effects**

- Routes of Body Entry
  1. Inhalation: normal breathing through lungs
  2. Ingestion (rare): accidental swallowing into stomach
  3. Skin: exposure to unprotected skin pores
  4. Eyes: exposure to human tissues in eyes
- Symptoms of Exposure
  1. Inhalation: coughing, burning, chest pain, vomiting, headache, anxiety, possible suffocation
  2. Ingestion: burning in esophagus and stomach, may reduce breathing capabilities
  3. Skin: severe irritation and can lead to chemical burns and possible tissue destruction. Contact with cold liquid or gas can result in freeze burns.
  4. Eyes: severe irritation with possible tissue/membrane damage

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

- **First Aid Techniques (get medical assistance immediately)**

1. Inhalation: remove victim to fresh air. If victim is breathing on his own, but is difficult, administer oxygen. If the victim is not breathing on his own, administer artificial respiration.
2. Ingestion: do not induce vomiting. Never administer anything by mouth to an unconscious victim. If victim is conscious, give large quantities of water or milk to drink.
3. Skin: get to emergency shower immediately and begin dousing with water. Remove contaminated clothing. Wash area(s) with soap and water.
4. Eyes: immediately flush with directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues.

### **4.3 Fire Fighting Procedures**

- If possible, chlorine containers should be removed from the fire zone immediately. If no chlorine is escaping, water spray should be applied to cool containers that cannot be removed.

### **4.4 Fire/Explosion/Reactivity Hazards**

- Chlorine is non-explosive and non-flammable. However, like oxygen, it is capable of supporting combustion of certain substances. Chlorine reacts explosively, or forms explosive compounds, with many chemicals. Included in this list of chemicals are acetylene, gasoline, turpentine, ether, ammonia gas, hydrogen, finely divided metals, sulfur, hydrocarbons, and/or aluminum.

## **HEALTH & SAFETY PROCEDURES MANUAL**

# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **4.5 Handling and Storage**

- Follow same safety procedures associated with compressed gas containers. Do not heat containers or expose them to direct sunlight or other sources of ignition. Store containers in well ventilated area of low fire potential and away from incompatible materials (such as those listed above in fire/explosion/reactivity section). Protect containers from weather and physical damage.

## **4.6 Spills**

- Contain liquids and prevent discharges to streams or sewers. Control or stop the loss of volatile materials to the atmosphere. Large leaks may require environmental consideration and possible evacuation. Do not apply water directly to a leak. Spills or releases of >10 pounds must be reported to the appropriate local, state and federal agencies.

## **5.0 Changing Chlorine Cylinders**

- At a minimum, employees must wear a full face air-purifying (APR) chemical cartridge respirator equipped with Organic Vapor/Acid Gas cartridges and neoprene gloves when changing out chlorine cylinders.
- A powered air-purifying respirator (PAPR) or a half-mask chemical cartridge APR equipped with the same cartridges can be substituted for the full face respirator however, when utilizing a half-mask chemical cartridge APR, vapor-proof goggles and a face shield must be worn along with the neoprene gloves.
- Employees who are wearing supplied-air respirators or self-contained breathing apparatus when performing the task of chlorine cylinder changes can continue to use those types of respirators as they afford a greater degree of protection to the employee than a chemical cartridge respirator.

# **HEALTH & SAFETY PROCEDURES MANUAL**

# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **5.1 Personnel**

- At a minimum, chlorine cylinder change outs should be done with two trained, respirator-qualified employees present.
- One employee should make the change-out while the second employee is positioned outside the chlorine room, but maintaining the 1st employee in line-of-sight at all times. The employee outside the chlorine room should be prepared to call for help, don a respirator and render emergency assistance to the employee inside the chlorine room if necessary.
- During training of new employees, there should be two employees (one trained, experienced employee and one trainee) in the chlorine room and a third respirator-trained employee stationed outside observing the activity.
- Do not prop open any door to the chlorine cylinder room during this process or allow any equipment or forklift to block a door in the event a leak takes place during the change-out.

## **5.2 Use of the Respirator**

- Respirators shall be worn during the process of changing chlorine cylinders whenever the employee is:
  - Opening a cylinder valve to charge a system, or
  - When disconnecting a cylinder, or
  - When checking for leaks on chlorine or other hazardous chemical systems where gas or vapors are a potential hazard. See Section 9.2 for specific procedures in response to a chlorine leak.

# **HEALTH & SAFETY PROCEDURES MANUAL**

# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **5.3 Signage**

- Ensure that proper signage has been posted stating that the area has a minimum Personal Protective Equipment (PPE) requirement (i.e., respirators required area during cylinder maintenance operations).

## **6.0 Chlorine Leak Detection Alarm Systems**

Sensor set points on the Chlorine Leak Detection Alarm Systems should be set as follows:

- First alarm set point (Warning mode) 1.0 PPM
- Second alarm set point (Alarm mode) 5.0 PPM

## **6.1 Systems Check**

- Monthly, perform sensor verification check (i.e., does sensor respond from exposure to bleach and vinegar mixture) and verify that system is functioning (is the alarm audible?). Develop sign-off sheets to document monthly systems check.

PPM. Develop procedure for calibration checks and document the quarterly calibration of sensors.



# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **7.0 Chlorine Leaks/Releases**

Chlorine leaks/releases are classified as follows:

**Class I Release** – This is defined as a minor release, where concentration of chlorine vapors are at least 1.0 PPM but less than 5.0 PPM (leak detection system in “Warning Mode”) in which there is **no** visible vapor cloud.

**Class II Release** – Is defined as a minor release where concentration of chlorine vapors exceeds 5.0 PPM (Leak detection system in “Alarm Mode”) in which there is **no** visible vapor cloud.

**Class III Release** – Is defined as a release which produces a visible vapor cloud and/or poses a threat outside the chlorine cylinder room to employees or the public.

## **8.0 Response to Chlorine Leaks/Releases**

Response to chlorine leaks/releases will be dictated by available PPE, employee training, whether or not the location has a scrubber and severity of the leak/release. This section of the program is intended to provide guidance for supervisors and specify minimum PPE if such an event occurs.

The two main factors that will determine the appropriate response and PPE are:

- Concentration of vapors (below or above 5 PPM)
- Absence or presence of a visible vapor cloud.

### **8.1 Response to Class I Releases (Concentrations below 5 PPM)**

A minimum of two respirator-trained employees are required when responding to a Class I release. One employee must remain outside the chlorine room maintaining communications or line-of-sight with the employee making entry.

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## **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

The employee entering the chlorine room must wear at a minimum, a full-face chemical cartridge APR equipped with Organic Vapor/Acid Gas cartridges and neoprene gloves. The employee outside the chlorine room must be prepared to don the same type of respirator and render emergency assistance if necessary.

A powered air-purifying respirator or a half-mask chemical cartridge respirator equipped with the same type of cartridges noted above may be substituted for the full-face respirator. If the half-mask respirator is worn, the employees must also don vapor-proof goggles and face shield and neoprene gloves.

The chlorine room ventilation system should be activated to help control the vapors while the employee is inside the room. If a scrubber is installed and auto-starts, allow the scrubber to continue its operation while the employee attempts to locate the leak and shut down the cylinder.

If the concentration of chlorine rises to 5 PPM or greater while an employee is in the chlorine room attempting to shut down the cylinder, the employee will evacuate the chlorine room immediately. If this occurs follow response procedures for a Class II release.

### **8.2 Response to Class II Releases (Concentrations at or exceeding 5 PPM)**

A minimum of two respirator-trained employees are required when responding to a Class II release. One employee must remain outside the chlorine room maintaining communications or line-of-sight with the employee making entry.

The employee entering the chlorine room must wear a self-contained breathing apparatus (SCBA) and neoprene gloves. The employee outside the chlorine room must also don an SCBA and gloves and be prepared to render emergency assistance if necessary.

**Note:** The employee outside the chlorine room is not required to breathe from the SCBA unless entry is required.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

If during entry, a visible vapor cloud forms, the employee will immediately evacuate the chlorine room. Procedures to respond to a Class III release should then be followed.

Districts that do not have self-contained breathing apparatus will not allow their employees to make entry into the chlorine room when concentrations of chlorine are at or exceed 5 PPM.

Those districts must immediately call 9-1-1 and notify outside emergency response agencies to control such leaks/releases unless a scrubber is installed and can handle the anticipated amount of the release.

Where scrubbers are installed (if the decision is made to allow the scrubbers to handle the release and employees will not enter, if more than one cylinder is or will become involved in the leak (this depends on how the cylinders are connected to the manifold), outside emergency response agencies (9-1-1) must be notified as the capacity of the scrubber will be exceeded.

### **8.3 Response to Class III Releases (Visible vapor cloud present)**

- For Locations That Do Not Have A Company Hazmat Response Team
  1. If at any time a chlorine release produces a visible vapor cloud, employees will not enter the chlorine room. If the facility does not have a scrubber, employees will call 9-1-1 for outside emergency response and assistance to control the leak.
  2. If the vapors are escaping the chlorine room, employees should evacuate to a safe location which will dependent upon wind direction.
  3. If the facility is equipped with a scrubber, and it is felt the scrubber can handle the anticipated amount of the release, then it becomes a management decision to notify outside agencies such as the Fire Department.

## **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

• For Locations That Do Have A Company Hazmat Response Team Response to a Class III release will be dictated by local written protocols which must be developed to address the following:

1. Where the team will assemble
2. What is the necessary PPE required for entry
3. Who will perform the incident command function?
4. When it is necessary to call for outside assistance
5. How the team will interface with local outside Hazmat Response Teams
6. How will the requirement for decontamination and medical standby be satisfied.

If the facility is equipped with a scrubber, and it is felt the scrubber can handle the anticipated amount of the release, and no entry will be made, then it becomes a management decision to notify outside agencies such as the Fire Department.

### **9.0 When Handling Or Potentially Exposed To Airborne Dusts From Potassium Permanganate, Powdered Activated Carbon, Copper Sulfate, Etc.**

These are particulate contaminations and the proper respiratory protection, if necessary, would be a simple dust mask rated N-95 or a chemical cartridge APR with a P-100 cartridge or filter.

# **CHLORINE SAFE HANDLING AND EMERGENCY PROCEDURES**

## **10.0 When Performing Line Breaking Procedures On Chemical Feed Process' That Present A Likelihood Of Exposure To Vapors Such As Ammonia Or Sulfur Dioxide**

Where ammonia or sulfur dioxide vapors are present or could be released because a task that is being performed, the organic vapor/acid gas cartridges will not provide the proper protection. If unsure of which cartridges to use or purchase, contact your Loss Control Manager or Specialist

## **11.0 Restrictions On The Use Of Air-Purifying Respirator**

Air-purifying respirators such as a simple dusk mask, chemical-cartridge respirator or powered air-purifying respirator cannot be used in the following situations or conditions:

- The atmosphere is oxygen-deficient, or
- The atmosphere is immediately dangerous to life or health (IDLH), or
- When dealing with an unknown chemical, or
- When the concentration of exposure is unknown

## **12.0 Buddy System**

In addition to the use of the buddy system when changing chlorine cylinders, employees must also utilize the buddy system whenever operating in an atmosphere that is or can be expected to become immediately dangerous to life and health (IDLH). The following chemicals common to water treatment have established IDLH levels:

Ammonia	300 parts per million (ppm)
Chlorine	10 ppm
Sulfur Dioxide	100 ppm

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## **HEALTH & SAFETY PROCEDURES MANUAL**

# **COLD STRESS**

## **1.0 Purpose**

The Company has developed this procedure to assist in the prevention of cold stress related injuries or illnesses during operations.

## **2.0 Scope**

This procedure applies to all Global Water Resources operations conducted in cold environments and/or where exposure to cold environments could lead to illness or injury.

## **3.0 Responsibilities**

- Supervisors and management will be responsible for assessing work conducted in Cold environments and to assure that an adequate work plan has been established to prevent the effects of cold stress. Supervisors will provide employees with necessary protective equipment to minimize the effects of cold and to assure that operations are conducted in a safe manner. Global Water Resources has the responsibility to implement this procedure for all operations where cold stress may affect the health and safety of employees.
- Employees will be required to utilize appropriate equipment as directed, to follow the outlined work plan and to report any issues or cold stress related injuries immediately.

## **4.0 Requirements**

The Company will take appropriate measures to prevent injuries from work in cold temperatures. We may obtain information either directly or indirectly on the air temperature and wind speed at a worksite and may use the data to learn the equivalent chill temperature (ECT) as listed in the physical agents section of the American Conference of Governmental Industrial Hygienist's (ACGIH) Threshold Limit Values (TLV) booklet.

Individuals suffering from diseases or who are taking medication that interferes with normal body temperature regulation may be restricted from working in temperatures < 30°F. Employees shall notify their supervisors when these conditions exist.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **COLD STRESS**

### **4.1 Work Practices**

- To control the effects of cold stress on employees, The Company will:
- Provide a 10-minute warm-up break after every 75 minutes of work whenever equivalent chill temperatures (ECT) fall below 20°F.
- Make available heated warming shelters (building or vehicle) if work is performed continuously in equivalent chill temperatures (ECT) of < 20°F.
- Limit or terminate outdoor work activities whenever the equivalent chill temperature (ECT) is in the "Increasing Danger" or "Great Danger" regions. (See ACGIH TLV booklet.) The Increasing Danger category begins with an ECT of -25°F that represents an air temperature of 10°F and a wind speed of 20 m.p.h.
- Shield the immediate work area with vehicles or tarp to reduce the cooling effects of the wind.

### **4.2 Hand Protective Equipment**

- If work will be performed with bare hands for more than 20 minutes in an environment < 40°F, then warm air jets, radiant heaters or contact warm plates should be used to keep workers' hands warm
- Water resistant, insulated gloves will be made available when air temperatures fall below 60°F for sedentary, 40°F for light, and 20°F for moderate work. As operations permit, employees will wear water resistant, insulated mittens whenever air temperatures fall below 0°F.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **COLD STRESS**

### **4.3 Total Body Protective Equipment**

Total body protection is required when work will be performed in environments with temperatures < 20°F. This body protection shall consist of clothing for the trunk and extremities and will include an insulated head liner (providing head, ear, and full face coverage), heavy socks, insulated steel-toed/steel-shank boots (as applicable under Business Unit personal protective equipment policies), insulated long underwear, and insulated body coverall.

If clothing may become wet, then the outer layer of clothing will be water repellent. Protective clothing that becomes wet from either contact with water or sweating greatly reduces insulating properties and therefore shall be immediately replaced.

If clothing does not prevent the sensation of cold or frostbite, then work activities will be terminated until more appropriate clothing is obtained or weather conditions improve.

### **5.0 Training**

The Supervisor or designee, with assistance from Operational Management, will train employees to recognize the effects of cold and the provisions of this policy.

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# **HEALTH & SAFETY PROCEDURES MANUAL** **COMMUNITY RIGHT-TO-KNOW (SARA Title III)**

## **1.0 Purpose**

The purpose of this procedure is to comply with the requirements of 40 CFR 355, 370, and 372 and to submit required notifications to local and state regulatory agencies as required.

## **2.0 Scope**

This program and the procedures contained within, apply to all Global Water Resources Operations and employees as applicable.

## **3.0 Responsibilities**

### **3.1 Supervisors/Management**

It is supervisor/management's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

### **3.2 Employees**

Employees are responsible for complying with this procedure.

## **4.0 Definitions**

**Covered Facility** – the facility has used one or more of the listed toxic chemical(s) in excess of 10,000 lbs. in a calendar year. Refer to chemicals listed in 40 CFR 372.65(c) to determine applicability.

**Local Emergency Planning Commission (LEPC)** – coordinate and supervise local emergencies.

**National Response Center** – if a spill of a substance exceeds its reportable quantity, the release must be reported at 1-800-424-8802.

**Reportable Quantity (RQ)** – the quantity of a hazardous substance that is as large as the RQ or larger which require reporting notifications under the Comprehensive Environmental Response, Compensation and liability Act (CERCLA). See 40 CFR 302.4, Table 302.4 and Appendix A for a complete list.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **COMMUNITY RIGHT-TO-KNOW (SARA Title III)**

**State Emergency Response Commission (SERC)** – the state agency that receive reports and notifications required by the SARA legislation.

### **5.0 Procedure for Emergency Notification**

- It is the responsibility of local management, or the lead operator in their absence, at each location to notify the State Emergency Response Center within 15 minutes of his/her knowledge that a release of a listed chemical at or in excess of the reportable quantity has been determined or has occurred.
- It is the responsibility of local management to maintain an up-to-date list of the hazardous chemicals with reportable quantities at their site.
- As soon as practical, the Business Units Operational Management will be verbally notified of the release.
- A spill report will be filled out and submitted to the Business Units Operational Management once the spill response efforts have been terminated. The report will be submitted within 48 hours or the next business day.
- Additional emergency contact information and procedures can be found in the State specific Sara Title III, Tier II reports or equivalent.

### **6.0 Emergency Planning**

Facilities that store or use any of the listed chemicals at or above the threshold planning quantity (TPQ) must report this fact to the SERC and LEPC.

- The purpose of this reporting is to enable the LEPC to develop an emergency plan based on the information provided.
- The District Manager will ensure that Material Safety Data Sheets (MSDS) are available to local and state officials and will also report inventory quantities, and the location of the chemicals on the premises.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **COMMUNITY RIGHT-TO-KNOW (SARA Title III)**

### **7.0 Hazardous Chemical Reporting**

Facilities containing hazardous chemical(s) in amounts over the reporting thresholds must submit MSDSs or a list of chemicals for which MSDSs are required and an annual chemical inventory to the local fire department, LEPC and the SERC.

- Tier II reports are typically due annually by March 1 to the SERC. The Tier II report contains information about chemical inventory, hazard categories, average daily amount and general location of the chemical(s).
- The District Manager will have the responsibility to complete and submit these required reports. The Business Unit Operational Management Department will support these efforts and provide technical assistance as necessary.
- Specific State or local regulations may have additional or more stringent reporting requirements, additionally listed chemicals and different reporting thresholds.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **COMPRESSED AIR & GASES**

### **1.0 Purpose**

The purpose of this standard operating procedure is to define safe handling and use of compressed air & gases when used within Global Water Resources operations.

### **2.0 Scope**

The Company has developed guidelines for transporting, storing, and using compressed gas cylinders to protect employees and to comply with OSHA 29 CFR 1910.101, Compressed Gases, and 29 CFR 1926.350, Gas Welding and Cutting.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all employees operate compressed air & gases in a safe manner in accordance with this procedure, manufacturer's recommendations, and applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and operating compressed air and gases in a safe manner.

### **4.0 Definitions**

**Compressed Gas** – any material or mixture having in the container an absolute pressure exceeding 40 pounds per square inch at 70°F, or regardless of the pressure at 70°F, having an absolute pressure exceeding 104 pounds per square inch at 130°F; or any flammable material having a vapor pressure exceeding 40 pounds per square inch absolute at 100°F.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **COMPRESSED AIR & GASES**

**Acetylene** – this gas has the widest flammable range known and is classified as an asphyxiant. It may contain dangerous amounts of phosphine and arsine when generated directly from calcium carbide. Under certain conditions, it can form spontaneously explosive compounds with silver, mercury, or copper. Acetylene is an unstable compound and may explode even under low pressures. The safe maximum pressure is 15 pounds per square inch for small diameter piping systems. Acetylene can be stored in cylinders at a pressure of 250 pounds per square inch at 70o F. The cylinders contain a porous material and acetone to absorb acetylene in a stabilized condition.

**Ammonia** – A colorless, lighter than air gas that has a piercing odor, and is highly irritating to the eyes, skin and respiratory tract. The substance is widely used as a fertilizer and refrigerant. Ammonia has a low limit of detection; it can be smelled at concentrations below Permissible Exposure Limits (PELs).

**Anhydrous Ammonia** – A pure, dry, flammable gas. Liquid anhydrous ammonia is this Ammonia gas compressed into a liquid. Ammonium hydroxide is gaseous ammonia dissolved in water. Anhydrous ammonia flammable range is very high, ammonia fires and explosions are not uncommon. The chief hazards of ammonia are freeze burns, severe eye injury and death from inhalation of high concentrations.

**Carbon Dioxide** – Odorless, colorless and heavier than air. Toxic when high percentages are present and can cause death when encountered in asphyxiating concentrations. This gas is not flammable and is in common use as a fire extinguishing agent. Because of its ability to displace oxygen, it will smother the fires of petroleum, coal and wood; but the fires of magnesium, sodium, potassium, and metal hydrides will burn rapidly in an atmosphere of carbon dioxide.

**Chlorine** – Is not flammable, but it can react with organic compounds such as petroleum products, ethers, and alcohols with explosive violence. It is a corrosive, very irritating gas. Only slightly soluble in water, chlorine reacts with water to form hypochlorous and hydrochloric acids which corrode iron and steel. Water should not be used on a chlorine leak. Iron and steel are not affected by dry chlorine at lower temperatures; however, those metals used in chlorine systems must be kept dry at all times.

**Fluorine** – A pale yellow, corrosive, and poisonous gas that attacks all but a few materials. Fluorine and acetylene mixtures also may explode if exposed to light.

**Hydrogen** – The lightest of all elements, is both colorless and odorless. Its flammable range is almost as wide as that of acetylene. A mixture of 10 to 65 percent in the air will explode if ignited. Hydrogen is classified as an asphyxiant.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **COMPRESSED AIR & GASES**

**Oxygen** – Although oxygen supports combustion, it does not burn. Oxygen is considered a hazardous element because flammable materials burn much faster in the presence of oxygen, and oxygen can quickly combine with other elements and compounds to produce spontaneous ignition. When oxygen comes into contact with oil, grease, or fuel oils, the result can be a sudden and violent fire. Employees involved in handling this gas must take every precaution to prevent this combination. Liquid oxygen can be equally dangerous if not handled properly. A burning cigarette dropped into liquid oxygen will produce a flame two feet high, and even shredded metal will burn if exposed to liquid oxygen. Open flames and smoking must never be allowed near oxygen storage areas.

### **5.0 Policy/Procedure**

- **Do not** use compressed air for breathing purposes (with the exception of Grade D or better breathing air in systems specifically designed for respiratory protection), as it may contain impurities.
  
- Eye protection is required when using compressed air.
  
- Never use the valve cap to lift cylinders. Use a proper cradle or other lifting device and make certain that the compressed gas cylinder is properly strapped or chained before transporting. Never roll cylinders.
  
- Improperly fitting connections on cylinders should never be forced. Never tamper with safety relief devices or cylinder valves. Always use proper regulators for the particular gas being used. Oil free regulators must be used on compressed gas cylinders.
  
- All cylinders must be color coded or marked to properly indicate the contents.
  
- Cylinder storage areas must be conspicuously placarded with the names of gases being stored.
  
- Always store compressed gas cylinders (whether full or empty) in an upright position. Chain or otherwise secure them so they cannot be upset or fall.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **COMPRESSED AIR & GASES**

- Federal law requires that cylinders of oxidizing gas have a 20-foot minimum separation from cylinders of flammable gas and that they are securely anchored at all times. A three hour rated fire wall can also be used to segregate cylinders. Always store cylinders in a ventilated area away from heat or ignition sources.
  
- **Do not** store empty and full cylinders together.
  
- Empty cylinders must be marked “**MT.**”
  
- Leak-test all connections to a cylinder with a soap solution.

**Caution:** Other than oxygen, any gas, regardless of its health hazard, may cause asphyxiation.

- When removing a regulator from a cylinder, the cylinder valve is closed first, and then the pressure is released from the regulator.
  
- When not in use, regulators on cylinders should be depressurized. If the cylinder is not to be used for a long time, the regulator must be removed and the valve cover screwed into place. This applies to welding carts as well.
  
- Do not use any compressed gas, other than air, for blowing or cleaning debris from surfaces or the body. Compressed air may be used to clean only if a fitting is provided that limits the air pressure to 30 pounds per square inch (PSI).

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

### **1.0 Purpose**

The purpose of this procedure is to comply with the requirements of 29 CFR 1910.146 and provide guidelines for identifying and evaluating confined spaces and their hazards, and to establish procedures and a permit system for control of hazards and safe entry into such spaces.

### **2.0 Scope**

This program and the procedures contained within apply to all Global Water Resources employees whose duties require that they enter confined spaces or serve as an attendant/entry supervisor in a confined space entry.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, proper equipment is provided and maintained and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and utilizing safety equipment as specified.

### **4.0 Definitions**

**Acceptable Entry Conditions** – the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

**Attendant** – an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

**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 (example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits), and
- (3) Is not designed for continuous employee occupancy

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

**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 as required.

**Note:** An entry supervisor may also serve as an attendant or as an authorized entrant, as long as that person is trained and equipped for each role he or she may serve. Also, the duties of entry supervisor may be passed from one trained individual to another during the course of an entry operation.

**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 (this concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet);
- (3) Atmospheric oxygen concentrations below 19.5 percent or above 23.5 percent
- (4) Atmospheric concentration of any substance for which a dose or permissible exposure limit is published which could result in employee exposure of its dose or permissible exposure limit.
- (5) Any other atmospheric condition that is immediately dangerous to life or health

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

**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.

**Immediately Dangerous To Life And Health (IDLH)** –any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a permit space.

**Non-Permit Confined Space** – a confined space that does not contain or, with respect to atmospheric hazards, have the potential to 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 Space** – a confined space that has one or more of the following characteristics:

- (1) Contains or has the 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.

**Prohibited Condition** – any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

**Rescue Service** – the personnel designated to rescue employees from permit spaces

**Retrieval System** – the equipment (including a retrieval line, chest or full body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

### **5.0 Procedure for Evaluating Confined Spaces**

5.1 It is the responsibility of management at each location to evaluate all confined spaces in the workplace (in facilities and on property owned, operated or accessed by Global Water Resources to include spaces such as valve or meter pits in the distribution system) for actual or potential hazards.

Based on the presence or absence of hazards, each space will be then classified as non-permit or permit-required as appropriate.

Each location will maintain a list of this procedure of all confined spaces. This list will be updated annually and provide the following information for each space:

- Location (example: East Plant)
  
- Description of the space (example: raw water intake valve pit)
  
- Actual or potential hazards (example: chemical feed lines, ground water accumulation, and possible hazardous atmosphere)
  
- Classification of the space (example: non-permit or Permit-Required)

5.2 If the workplace contains permit-required spaces, management will inform exposed employees by:

- Posting danger signs on or near the entrance to the space that state **“DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER, or similar language.**
  
- Ensuring employees are aware of the location of the confined space list that will inform them of the hazards or dangers posed by the permit space.

5.3 If management decides employees will not enter a particular permit space (i.e., lime hoppers, chemical storage tanks, etc.), effective measures will be taken to prevent employees from entering the space in addition to required signage.

# HEALTH & SAFETY PROCEDURES MANUAL

## CONFINED SPACE

### 6.0 Confined Space Entry Permits

Procedures for entry into permit-required confined spaces will be dependent upon the hazards posed by the space and the action(s) necessary to control or eliminate those hazards. A written [Entry Permit](#) is required for employees to enter confined spaces designated as permit-required.

**6.1** The purpose of the permit is to document the assessment of the space prior to safe entry. Any person who enters the confined space will be given the opportunity to observe the pre-entry testing.

**6.2** The duration of the permit will not exceed the time required to complete the assigned work and the permit will be posted at the job site during the entry operation.

**6.3** If work is to be done which provides an ignition source (i.e. welding, cutting, or heating with an open flame or spark-producing device) in the space, then a [“Hot Work”](#) permit will also be completed. All requirements of the entry permit also apply to the Hot Work permit. Hot work cannot be done in a confined space without an attendant.

**6.4** The attendant/entry supervisor will terminate the entry and cancel the permit when all work covered by the permit has been completed, or a condition arises in the space which is unsafe or not allowed under the permit.

**6.5** All permits are required to be maintained on file for a minimum of one year.

**6.6** Entry supervisor will complete specific sections of the permit based upon an evaluation of the space prior to entry to determine:

- If the space can be reclassified as a non-permit space, or
- If the only hazard posed is an actual or potential atmospheric hazard that can be controlled by ventilation alone, or
- If the space cannot be reclassified and ventilation alone will not be sufficient to control an atmospheric hazard requiring the space to be entered utilizing an attendant and retrieval system or rescue service.

# HEALTH & SAFETY PROCEDURES MANUAL

## CONFINED SPACE

### 7.0 Reclassification of a Permit-Required Confined Space

7.1 A space classified by the Company as a permit-required confined space may be temporarily reclassified as a non-permit confined space if the following conditions can be met.

- The space poses no actual or potential atmospheric hazards, and
- All hazards within the space can be eliminated without entry into the space, and
- No hazards will be introduced into the space during the entry operation.

**Note:** control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards.

7.2 Prior to entry, employees will evaluate the space to determine if the above conditions can be met. As a part of the evaluation, the atmosphere must be tested and the results recorded on the [Entry Permit](#).

7.3 If entry is necessary to obtain atmospheric testing data, entry will be made under full permit entry procedures.

7.4 Employees must complete relevant sections of the entry permit to certify and document that conditions have been met and the space has been reclassified as a non-permit space. If such certification is possible, no other safety procedures beyond guarding the opening are required.

**Note:** Reclassification of the space based on the conditions above is temporary and valid only for the duration of that entry. If employees leave the space, the space must be re-evaluated prior to entry.

# HEALTH & SAFETY PROCEDURES MANUAL

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## **8.0 Entry Procedures for Spaces That Pose Only An Atmospheric Hazard**

Employees will follow these procedures when the only hazard posed by a permit required confined space is an actual or potential hazardous atmosphere and it can be demonstrated that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.

8.1 Complete general information and atmospheric testing sections of the entry permit.

8.2 Any conditions making it unsafe to remove an entrance cover will be eliminated before the cover is removed.

8.3 After the cover is removed, the opening will be promptly guarded to prevent an accidental fall through the opening and protect employees working in the space from foreign objects entering the space.

8.4 When entering a confined space all areas of space that will be occupied must be tested with a calibrated direct-reading instrument (See Atmosphere Testing section of the [Entry Permit](#) and the results recorded on the Entry Permit.

8.5 Establish and maintain continuous forced air ventilation

- Employees may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere.
- The forced air ventilation will be so directed as to ventilate the immediate areas where employees will be present within the space and continue until all employees have left the space.
- The air supply for the forced air ventilation will be from a clean source and may not increase the hazards in the space.
- The atmosphere within the space will be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

8.6 Complete Permit-Required Spaces That Pose Only An Atmospheric Hazard (Section IV) of the [Entry Permit](#). If a hazardous atmosphere is detected during the entry, employees will immediately exit the space, the space will be evaluated to determine how the hazardous atmosphere developed and measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place

### **9.0 Full Permit Entry Procedures**

Employees will follow these procedures when a permit-required confined space cannot be reclassified, or the space contains an atmosphere that cannot be safe for entry by ventilation alone or the space contains any other hazard(s) that cannot be rendered safe or eliminated without entry.

9.1 Designate the employees who are to have active roles as the entrant(s) and attendant/entry supervisor in the entry operation in Section V of the [Entry Permit](#).

9.2 Any conditions making it unsafe to remove an entrance cover will be eliminated before the cover is removed.

9.3 After the cover is removed, the opening will be promptly guarded to prevent an accidental fall through the opening and protect employees working in the space from foreign objects entering the space.

9.4 Before entering, the internal atmosphere must be tested with a calibrated direct-reading instrument (see Atmospheric Testing section of this procedure) and the results recorded in Section II of the [Entry Permit](#). All areas of space that will be occupied must be tested.

9.5 If the atmospheric test results are not within acceptable ranges, ventilate or purge the space and retest until test results are acceptable for entry.

9.6 If the work to be done within the space will cause an atmospheric hazard

or there is a potential for an atmospheric hazard to develop for other reasons, continuous forced air ventilation will be used and the atmosphere periodically tested.

9.7 Document and assemble equipment necessary for safe entry (see section V of the [Entry Permit](#))

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## **CONFINED SPACE**

9.8 Identify the hazards present in the space and a method of controlling each hazard identified.

9.9 Assemble and setup a retrieval system to facilitate non-entry rescue. Where non-entry rescue is not possible, a rescue service must be utilized that can perform entry to effect rescue (see section 14.0-Policy On Rescue).

9.10 All employees involved in the entry must sign the permit prior to entry indicating they understand the task to be performed within the space, the hazards posed by the space and the safeguards necessary to make safe entry.

9.11 The attendant/entry supervisor must sign the permit to authorize the entry to begin.

9.12 When the entry operation is completed, the attendant/entry supervisor will cancel the permit and file documents as instructed.

### **10.0 Employee Duties and Training**

Employees entering permit-required confined spaces under the full permit procedures as described in this procedure must operate as a team with each member of the team assigned specific duties and responsibilities.

Each employee required to enter permit-required confined spaces will be trained on the roles of an entrant, attendant, and entry supervisor.

The focus of the training will be on ensuring that the employees have the understanding, knowledge, and skills necessary for the safe performance of their duties.

This training will include the correct use of atmospheric monitoring equipment and retrieval systems that facilitate non-entry rescue.

#### **10.1 Entrant Duties:**

- Know the hazards that may be faced during entry (i.e. mode, signs, or symptoms) and consequences of exposure.
- Properly use all equipment required by the permit.
- Communicate with the attendant so that the attendant can monitor the entry.



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- Alert the attendant of any warning device alarms, symptoms of exposure to a hazardous atmosphere, or unsafe conditions prohibited by the permit.
- Exit the space as quickly as possible whenever an order to evacuate is given by the attendant or supervisor, the entrant detects a prohibited condition, or a warning sign or symptom of exposure to a dangerous situation.

### **10.2 Attendant Duties:**

- Know the hazards that may be faced during entry (i.e. mode, signs, or symptoms) and consequences of exposure.
- Be aware of the possible behavioral effects of hazard exposure in an entrant.
- Maintain a head count of authorized entrants within the space.
- Remain outside the permit space during entry operations until relieved by another attendant.
- Immediately order evacuation if the attendant recognizes a prohibited condition, the behavioral effects of exposure to a hazard, or a situation occurs outside the space that could endanger the entrant.
- Utilizing the truck radio or company cell phone, summon rescue and emergency services as soon as the attendant determines that the entrant(s) needs help to escape from the confined space hazard.
- Communicate with the entrant(s) at all times. If necessary, a means of communication, such as two-way radios, will be used for this purpose.
- Ensure that the permit is posted at the job site and shows the results of the atmospheric testing.
- Perform non-entry rescue as specified by company policy on rescue from confined spaces.

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## **CONFINED SPACE**

- Perform no other duties, which may interfere with the attendant's duty to monitor and protect the authorized entrant(s).

### **10.3 Entry Supervisor Duties:**

- Know the hazards that may be faced during entry (i.e. mode, signs, or symptoms and consequences of exposure).
- Verify, by checking, that all tests specified by the permit have been completed before allowing entry to begin.
- Verify that rescue services are available and means to summon them are available.
- Verify by checking, that for each hazard identified on the permit, the measure to control the hazard has been specified on the permit and completed.
- Ensure that entry operations completed are only those specified on the permit.
- Verify by checking, that all equipment specified by the permit is in place and operable.
- Remove unauthorized individuals who enter or attempt to enter the space during the operation.
- Terminate the entry and cancel the permit when operations are complete, a condition occurs which is not covered by the permit, or an evacuation order is given for any other reason

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## **CONFINED SPACE**

### **11.0 Atmospheric Testing**

The internal atmosphere of a permit-required confined space will be tested using a calibrated, direct-read gas monitor, for the following conditions and in the order given:

- **Oxygen Content** – The oxygen content must not be less than 19.5% nor more than 23% by volume for entry.
  
- **Flammable/Combustible Gases And Vapors** – The space cannot be entered if the test shows the presence of a flammable/combustible gas/vapor at a level of 10% of its lower explosive limit (LEL) or greater. The LEL is the minimum concentration of vapors and air mixed in which an ignition or explosion could occur.
  
- **Carbon Monoxide** – The space cannot be entered if the level of carbon monoxide is 35 parts per million (ppm) or greater.
  
- **Other Toxic Air Contaminates** – If the presence of other toxic air contaminants is suspected, the space will be tested for those contaminants prior to entry.
  
- **Hydrogen Sulfide (wastewater systems)** – The space cannot be entered if the level of hydrogen sulfide is 10 parts per million (ppm) or greater.

### **12.0 Continuous Forced Air Ventilation**

12.1 Continuous Forced-Air Ventilation must be used when:

- Initial atmospheric testing results in any area are not within acceptable limits.
  
- When introducing atmospheric hazards into the space (i.e. welding, cutting, painting, etc.)
  
- When there is a potential for an atmospheric hazard to develop during the entry.

12.2 The supply for the forced-air ventilation must be from a clean source that will not increase the hazards in the space.

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## **CONFINED SPACE**

### **13.0 Retrieval System**

13.1 A retrieval system will be used to facilitate “Non-Entry Rescue” when:

- A permit-required confined space cannot be reclassified as non-permit required, or
- When the only hazard posed by a permit-required confined space is an actual or potential hazardous atmosphere and it **cannot** be demonstrated that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.
- Vertical depth greater than five feet.

13.2 For entry into horizontal permit-required confined spaces, as a minimum, the entrant will wear the full body harness or anklets and be tethered by a rope under the direct control of the attendant.

13.3 The retrieval system will not be used if it will cause a potential increase in the hazards to the entrant. Electing not to use the retrieval system for this reason must be documented on the permit.

13.4 If it is not possible to use a retrieval system, or the use would not contribute to the rescue of the entrant, then an outside rescue service having the capability and training to enter to perform rescue must be utilized.

### **14.0 Policy on Rescue**

14.1 Global Water Resources policy on rescue in confined spaces is that its employees will not enter the space to perform rescue operations. In case of a confined space emergency, the attendant of the employee(s) in the confined space will use the truck radio, company cellular phone, or other methods available to call for help.

14.2 Company employees are not trained to perform rescue operations and doing so could place them in danger.

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### **CONFINED SPACE**

14.3 In accordance with the confined space regulation, community (i.e. fire departments) or contract confined space rescue responders will be extended the opportunity to become familiar with any of our confined spaces and their potential hazards.

14.4 The Company will also verify that the emergency responder is trained, equipped, able, and willing to perform rescue for our confined spaces.

### **15.0 Contractors in Confined Spaces**

15.1 When contractors are performing work for Global Water Resources, which includes entry into permit-required confined spaces, the Company is responsible for the following:

- Informing the contractor that the work includes permit-required confined space entry, which must be performed in accordance with OSHA regulations.
- Informing the contractor of the hazards identified with the space and any precautions the Company has taken to ensure the safety of its employees when they have performed work in that space.
- Providing an entry supervisor and coordinating the entry operations **only** if both company employees and contractor employees will be working in that space.
- “Debriefing” the contractor at the conclusion of the entry operations regarding the entry program followed and any hazards confronted or created during the entry.

15.2 The Company **is not** responsible for preparing entry permits for the contractor, and is not responsible for coordinating entry unless company employees will also be working in that confined space.

### **16.0 Training**

16.1 It is the responsibility of the supervisor to assure that training has been provided to all employees in his/her department who will enter confined spaces in the performance of their duties.

16.2 A new employee who has yet to receive Confined Space training is not allowed to work as an Entrant, Attendant, or Entry Supervisor. It is also the supervisor’s responsibility to enforce the provisions defined in this program.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONFINED SPACE**

### **17.0 Program Review**

The Business Units Operational Management will conduct an annual review of this program. This will include reviewing canceled entry permits and the inventory of confined spaces. The inventory list and the written program will be updated and amended as necessary.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONTRACTOR SAFETY REQUIREMENTS**

### **1.0 Purpose**

The purpose of this section is to describe the responsibilities of Global Water Resources and its contractors who perform work for Global Water Resources or on premises operated by Global Water Resources.

### **2.0 Scope**

This procedure applies to all Global Water Resources operations that utilize contractors for the performance of work.

### **3.0 Responsibilities**

The contractor has the responsibility to ensure that their employees are adequately trained in safe work practices and comply with applicable regulations. Global Water Resources locations may designate a representative(s) to monitor construction/maintenance activities. Global Water Resources is responsible for ensuring that contractors follow this procedure and that applicable hazard information specific to the areas where the contractor may work are conveyed to the contractor at the start of a project.

### **4.0 Procedure**

#### 4.1 Contractor Safety

- All contractors shall abide by the safety and health policies pertaining to the location, facility, or project on which they are working. A contractor's violation of these safety and health policies could expose our employees, the public and our property, as well as the contractor, to unnecessary hazards. Strict enforcement of this policy by supervisory personnel is expected.
- The contractor shall designate a safety representative.
- Each contractor must be apprised of any hazards and pertinent safety information before commencing any task ([see Contractor Safety Orientation Checklist](#)).

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONTRACTOR SAFETY REQUIREMENTS**

- Each contractor must certify in writing that he/she has been informed about, and understands, all relevant safety information before coming onto Global Water Resources premises.

### 4.2 Qualifications of Contractors

Contractor safety performance will be a significant requirement in the contractor selection process. Compliance with the following criteria will be minimum requirements in contractor selection and will be monitored on a continuing basis.

Safety results should be judged on a continuing basis. Safety results should be judged on the basis of improvement made in year-to-year results. Criteria for contractor health and safety information are listed below ([See Contractor Health and Safety Questionnaire](#)).

- Evaluate the contractor's Experience Modification Ratio (EMR) for the previous three years including the current year. An average EMR of over 1.0 or an escalating 3 year average EMR number would indicate a unfavorable safety record and require further evaluation prior to approval.
- Copy of occupational injury/illness statistics for each of the past three years, including the current year. This includes incident rates per 200,000 hours worked. (Do not present names of injured.) Compare the contractor's values against current Bureau of Labor Statistics for a similar SIC code organization.
- Contractor shall certify the existence of a written Safety and Health program and that their employees have received the necessary safety training applicable to the contracted work.
- If required, contractors will have a written substance abuse program in place and be prepared to submit evidence of compliance.
- The contractor is responsible for keeping site injury statistics and reporting all accidents resulting from injury to a contract employee on the premises to Global Water Services.
- Global Water Resources may take appropriate action against any contractor for non-compliance with health & safety practices.



## **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR SAFETY REQUIREMENTS**

- The contractor immediately reports all incidents or accidents occurring on Global Water Resources locations. The contractor investigates and provides a report that includes a description of the incident, a primary cause for the incident, corrective actions addressing the primary cause, and assignment of responsibility for completion of corrective action within 48 hours of occurrence.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONTRACTOR PREBID QUALIFICATION**

### **REQUIREMENTS**

#### **1.0 Purpose**

The pre-qualification of contractors requires a methodical investigation of credentials to determine that those contractors selected possess a level of technical expertise commensurate with that demanded by the project, are known to be reputable business organizations in sound financial condition, and are currently in the position to properly staff the project with experienced personnel.

#### **2.0 Scope**

This procedure applies to all Global Water Resources facilities.

#### **3.0 Responsibilities**

The pre-qualification of contractors is the responsibility of the individuals assigned to administer a project.

#### **4.0 Procedures**

The process involves the development of a preliminary list of potential contractors, then, through a series of increasingly detailed reviews, arriving at a final list of bidders for the project. Pre-Qualification is required for each contractor selected to bid on a project. As each project is unique and offers its own special demands, contractors previously pre-qualified for past projects may not be automatically approved for all future projects. Investigation, although to a lesser degree, may be required.

##### **4.1. Develop a Preliminary List of Contractors**

This involves exploring the available sources of contractor information such that all eligible contractors are considered. During the early design phase, the project should be advertised. The McGraw Hill, Inc.; Dodge Report and local construction news publications should be used. This will result in correspondence or communication from interested contractors.

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## **CONTRACTOR PREBID QUALIFICATION**

### **REQUIREMENTS**

Finally, an engineering consultant, if one is involved, can be questioned for a list of possible contractors. The above steps will serve as a sufficient canvas of contractors and generally will result in a list of ten or more potential contractors. If the resulting list is less than five (5) contractors, the following additional steps may be necessary:

- Contact the water and sanitary sewer departments in the vicinity of the project requesting the names of contractors they use.
  
- Contact local chapters of the Associated General Contractors of America (AGC) and the Association of Building Contractors (ABC) and request a list of interested contractors.
  
- Advertise the project in the newspapers having circulation local to the project and statewide.

Having completed 1.3.1, the preliminary list of contractors will be used to develop a pre-qualification list per 1.3.2.

#### **4.2. Development of Pre-Qualification List**

This step of the process involves a cursory level review of the contractors identified in 1.3.1 and the elimination of those contractors not having experience in the field of work associated with the project.

By performing this cursory level review, a list of contractors worthy of further investigation will be developed and unnecessary investigative effort on the part of the engineer, and submittal of detailed information by an unqualified contractor, is avoided.

#### **4.3. Detailed Investigation**

This step involves obtaining, reviewing and investigating detailed information about a contractor's experience, reputation, current work load, financial condition and safety record. To help in the performance of this step, two forms have been developed, the [Work Experience Questionnaire](#) and [Qualification Statement Form](#) (WEQ) and the [Telephone Interview Questionnaire Form](#) (TIQ).

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## **CONTRACTOR PREBID QUALIFICATION**

### **REQUIREMENTS**

A recent WEQ for each contractor should be obtained. If a form does not exist in the file, or is not recent (over 3 years old), a new or updated form should be requested from the contractor. From the information contained in the WEQ, a review of projects completed within the last three to five years should be performed. Based on this review it is desirable that the contractor have completed at least two projects of similar or greater size and complexity than the current project. The references given for those projects should be interviewed using the TIQ form. If several years have passed from the date the contractor was last investigated, telephone interviews should be performed. A minimum of three, preferably five, telephone interviews should be performed and should provide engineering, owner, and field inspection input for at least two representative projects. Through the telephone interview process, it is to be established that the contracting firm has demonstrated itself to be a reputable business organization with experienced and cooperative personnel on staff. For large or complicated projects, when investigating a contractor with no previous company work history, consider visiting the contractor's office, yard, and one or two current and completed projects in addition to the telephone interview process. For contractors who operate in limited geographical locations, the Better Business Bureau for that area should be contacted to determine if any complaints have been filed.

Contractors receiving satisfactory confirmation via the telephone interview process should be investigated for current workload, financial condition and safety record. If the estimated contract value of the project is low (20% ± or less) compared to the contractor's average annual revenues for the past three years (from WEQ), current workload would be less of a concern. As a general rule, the sum of the value of a contractor's current work and estimated contract value of your project should not exceed the contractor's bonding capacity by more than 10%. Exceptions can be made with appropriate considerations. It is to be recognized that a contractor may complete some of his current projects prior to starting your project but, at the same time, he will be bidding on projects other than yours.

Relative to the contractor's financial condition, an exhaustive financial analysis is not warranted as the contractor will be required to furnish surety bonds for projects in excess of \$150,000. A brief review of a contractor's income statement and balance sheets can be performed to establish that annual revenues have been steady over the past three and that the business has operated "in the black". Notes or comments of the preparer of the financial statements should be reviewed to determine if any current situations are pending (lawsuits, arbitration, etc.) that could significantly affect the contractor's financial position. If a contractor's financial condition is questionable and the contractor is needed to complete a competitive bidder's list for the project, a Dun & Bradstreet report can be obtained. This report will provide a credit history and a current financial evaluation and rating.

# **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR PREBID QUALIFICATION** **REQUIREMENTS**

Per the Work Experience Questionnaire the contractor is required to submit information regarding his safety program and record. This information includes OSHA lost workday and recordable injury rates. The [OSHA Form No. 300](#) which the contractor is requested to submit will list specific recordable injuries. This information can be reviewed to determine if a trend exists and whether the types of injuries recorded present at any concerns relative to potential risks on the specific project. The contractor is also requested to provide his Worker's Compensation Experience Modifier Rating (EMR) for the past five years. The EMR is the average ratio over the preceding three years of actual to anticipated payments of worker's compensation claims. The EMR is a good general indication of safety performance. The contractor is also requested to submit his general safety policy statement and, at his option, an index of topics covered in his safety procedure manual. The development of site specific safety plans, new employee and subcontractor safety orientation programs, regular toolbox safety meetings, safety training of site supervisors, and on-site safety incentive programs are the contractor's responsibility.

## **4.4. Documentation**

Documentation of the pre-qualification process is required and presents a standardized approach to gain approval of recommendations and allow later retrieval and use of the data. The process is separated into two parts, documentation of the investigation of a particular contractor, and documentation of bidder selection for a particular project. Documentation of contractor evaluations is to be provided via the [Work Experience Questionnaire Follow-Up Investigation Form](#). This form, including its attachments (WEQ and Tics), is to be submitted to the appropriate supervisory personnel for approval and then filed in a Contractor File. The documentation of bidder selection for the project will be comprised of the preliminary contractor list (Step No. 1), the pre-qualification list (Step No. 2), the recommended bidders list (Step No. 3), and the approved bidders list. These lists are to be filed in the project contract file.

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**DEPARTMENT OF TRANSPORTATION (D.O.T.)**  
**SUBSTANCE ABUSE PROGRAM**

### **1.0 Purpose**

To provide a workplace environment promoting health and safety and to comply with Department of Transportation requirements applicable to substance abuse testing.

### **2.0 Scope**

The Company designed this section for all its operating companies.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

#### **3.3 Designated Officials**

The Business Units Operational Management is responsible for implementing, directing, administering, and managing the DOT Substance Abuse Policy. The Division Manager serves as the principal contact with the laboratory and for collection activities in assuring the effective operation of the testing portion of the policy. In carrying out his/her responsibilities, the Local Division Manager, among other duties:

1. Assumes the lead role in the implementation and coordination of the Company's policy;
2. Ensures that all employees subject to testing, receive a copy of the Company's policy;
3. Schedules training for existing personnel and newly hired employees;
4. Publicizes and disseminates drug program educational materials, and oversee training and education sessions;

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5. Arranges for all testing authorized in this policy;
6. Receives all test results (unless other arrangements have been made);
7. Maintains all required records (unless other arrangements have been made);
8. Maintains all documentation generated by the testing program;
9. Addresses all comments concerning the program;
10. Files all reports with the appropriate government authorities; and
11. Performs any other task affecting program maintenance.

#### **4.0 Introduction**

- The Company is dedicated to providing safe and efficient service to its customers. Our employees are our most valuable resource in ensuring the quality of this service. Therefore, Global Water Resources goal is to provide our employees with a workplace environment which promotes health and safety. In order to meet this goal, Global Water Resources here by endorses the Federal Motor Carrier Safety Administration's anti-drug and alcohol policy and regulations.
- The Company expects that employees report to work fit to perform their duties safely and efficiently. While the Company has no desire to intrude upon the employee's private life, the overall goal of this policy is to insure a substance-free transportation environment and to reduce accident, injuries and fatalities.
- Therefore, the Company will implemented a drug and alcohol-testing program for its employees effective **(enter date)**. The testing program is designed to deter employees from misusing alcohol and using controlled substances.

#### **5.0 Acronyms and Definitions**

**Adulterated Specimen** – Specimen containing a substance not expected to be present in human urine, or contains a substance expected to be present but is at a concentration so high that it is not consistent with human urine.

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**Affiliate** – Persons are affiliates of one another if, directly or indirectly, one controls or has the power to control the other or a third party controls or has the power to control both. Indicators of control include, but are not limited to interlocking management or ownership; shared interest among family members; shared facilities or equipment; or common use of employees. Following the issuance of public interest exclusion, an organization having the same or similar management, ownership, or principal employees as the service agent concerning whose public interest exclusion is in effect is regarded as an affiliate. This definition is used in connection with the public interest exclusion procedures.

**Air Blank** – In evidential breath testing devices (EBTs) using gas chromatography technology, a reading of the device's internal standard. In all other EBTs, a reading of ambient air containing no alcohol.

**Alcohol** – The intoxicating agent in beverage alcohol, ethyl alcohol or other low molecular weight alcohols, including methyl or isopropyl alcohol.

**Alcohol Concentration** – The alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by a breath test.

**Alcohol Confirmation Test** – Subsequent test using an EBT, following a screening test with a result of 0.02 or greater, providing quantitative data about the alcohol concentration.

**Alcohol Screening Device (ASD)** – Breath or saliva device, other than an EBT, approved by the National Highway Traffic Safety Administration (NHTSA) and placed on conforming products list (CPL) for such devices.

**Alcohol Screening Test** – Analytic procedure to determine whether an employee may have a prohibited concentration of alcohol in a breath or saliva specimen.

**Alcohol Testing Site** – Place selected by the employer where employees present themselves for the purpose of providing breath or saliva for an alcohol test.

**Alcohol Use** – Drinking or swallowing of any beverage, liquid mixture or preparation (including any medication), which contains alcohol.

**Blind Specimen or Blind Performance Test Specimen** – Specimen submitted to a laboratory for quality control testing purposes, with a fictitious identifier, so that the laboratory cannot distinguish it from an employee specimen.



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**Breath Alcohol Technician (BAT)** – Person who instructs and assists employees in the alcohol testing process and operates an evidential breath-testing device.

**Cancelled Test** – A drug test is canceled if an error or accident is noticed before the specimen has been analyzed. Some examples of the reasons for a test cancellation are: all personnel who handle the specimen; or, the specimen leaks during shipping or handling do not sign the chain-of-custody form. All test cancellations must be documented.

**Chain of Custody** – Procedure used to document the handling of the urine specimen from the time the employee gives the specimen to the collector until the specimen is destroyed. This procedure uses the Federal Drug Testing Custody and Control Form (CCF).

**Consortium/Third Party Administrators (C/TPAs)** – Service agent who provides or coordinates the provision of a variety of drug and alcohol testing services to employers. The D.O.T. does not distinguish between Cs and TPAs.

**Collection Container** – Container into which the employee urinates to provide the specimen for a drug test.

**Collection Site** – Place selected by the employer where employees present themselves for the purpose of providing a urine specimen for a drug test.

**Collector** – Person who instructs and assists employees at a collection site, who receives and makes an initial inspection of the specimen provided by those employees, and who initiates and completes the CCF.

**Confirmation (or Confirmatory) Drug Test** – Second analytical procedure performed on a urine specimen to identify and quantify the presence of a specific drug or drug metabolite.

**Designated Employer Representative (DER)** – A new addition to D.O.T. rule. The DER is an employee authorized by the employer to take immediate action to cause employees to be removed from safety-sensitive duties and to make required decisions in the testing and evaluation process. The DER also receives test results and other information to the employer. Service Agents **cannot** act as DERs.

**Dilute Specimen** – Specimen with creatinine and specific gravity values that are lower than expected for human urine.

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**Department of Transportation (D.O.T.)** – These terms encompass all D.O.T. agencies, including, but not limited to, the United States Coast Guard (USCG), the Federal Aviation Administration (FAA), the Federal Railroad Administration (FRA), the Federal Motor Carrier Safety Administration (FMCSA), the Federal Transit Administration (FTA), the Research and Special Programs Administration (RSPA), and the Office of the Secretary (OST). These terms include any designee of a D.O.T. agency.

**Drugs** – The drugs for which tests are required and D.O.T. agency regulations are marijuana, cocaine, amphetamines, phencyclidine (PCP), and opiates.

**EAP** – Employee Assistance Program

**FAA** – Federal Aviation Administration – The D.O.T. agency that regulates drug testing in the Aviation Industry.

**FMCSA** – Federal Motor Carrier Safety Administration (formerly known as Federal Highway Administration – FHWA) – The D.O.T. agency that regulates drug testing in the Trucking Industry.

**FRA** – Federal Railroad Administration – The D.O.T. agency that regulates drug testing in the Rail Industry.

**FTA** – Federal Transit Administration – The D.O.T. agency that regulates drug testing in the Mass Transit Industry.

**Initial Drug Test** – Test used to differentiate a negative specimen from one that requires further testing for drugs or drug metabolites.

**Invalid Test** – An invalid test result occurs when a collection error or adulteration is noticed after the specimen has been analyzed. Examples of this invalid test results include: two test results found to have the same number; it is suspected that the specimen has been adulterated; or, if the custody and control form was incorrectly completed. An invalid test is the same as a non-test; it is neither positive nor negative.

**Laboratory** – Any U. S. laboratory certified by HHS under the National Laboratory Certification Program as meeting the minimum standards of Subpart C of the HHS Mandatory Guidelines for Federal Workplace Drug Testing Programs; or, in the case of foreign laboratories, a laboratory approved for participation by D.O.T.

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**Medical Review Officer (MRO)** – Licensed physician with knowledge of substance abuse disorders who reviews and interprets analytically positive results of tests to determine if a legitimate medical explanation accounts for the verified positive analytical result.

**Memorandum for the Record (MFR)** – Statement prepared by an individual that provides or corrects information on any documents associated with a drug test.

**Negative Test** – One which shows no indication of substance of abuse upon initial screening; or, one which has shown a presumption of such substance on the screening test, but not on the confirmatory test; or, one which has been judged to be negative by the Medical Review Officer on a basis other than the results of the analytical process.

**Notice of Proposed Exclusion (NOPE)** – The notice that begins a PIE proceeding. The issuance of a NOPE is a matter of public record.

**Office of Drug and Alcohol Policy and Compliance (ODAPC)** – “Office’ within the Office of the Secretary, D.O.T., that is responsible for coordinating drug and alcohol testing matters within the Department and providing information concerning the implementation of Part 40.

**Pipeline & Hazardous Materials Safety Administration (PHMSA)** – The D.O.T. agency that regulates drug testing in the Oil and Gas Pipeline Industry.

**Public Interest Exclusion (PIE)** – A mechanism that allows D.O.T. to ban the use of a non-complying SA by D.O.T.-regulated employers. A PIE would be issued only after a series of procedures designed to ensure fairness.

**Positive Test** – One that has been evaluated for administrative, forensic, and analytical accuracy, with a determination, through dialogue with the employee who provided the sample and examination of all known confounders, that has been judged as a “true” positive by the Medical Review Officer.

**Primary Specimen** – In drug testing, the urine specimen bottle that is opened and tested by a first laboratory to determine whether the employee has a drug or drug metabolite in his or her system; and for the purpose of validity testing. The primary specimen is distinguished from the split specimen, defined in this section.

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**Qualification Training** – The training required in order for a collector, BAT, MRO, SAP, or STT to be qualified to perform their functions in the D.O.T. drug and alcohol-testing program. Qualification training may be provided by any appropriate means (e.g., classroom instruction, Internet application, CD-ROM, video).

**Refresher Training** – The training required periodically for qualified collectors, BATs, and STTs to review basic requirements and provide instruction concerning changes in technology (e.g., new testing methods that may be authorized) amendments, interpretations, guidance, and D.O.T. agency drug and alcohol testing regulations. Refresher training can be provided by any appropriate means (e.g., classroom instruction, Internet application, CD-ROM, video).

**Safety-Sensitive Duties** – Those duties that may directly or indirectly affect the safety of employees and the general public.

**Substance Abuse Mental Health Services Administration (SAMHSA)** – An agency of the Department of Health & Human Services that has responsibility for the laboratory certification program and the Federal Custody and Control Form (CCF).

**Screening Test Technician (STT)** – Individual trained and certified to conduct alcohol screening using an approved screening device such as a saliva swab.

**Screening Test** – Analytical method, which determines the presence of a material in the sample which may, represents a substance of abuse.

**Secretary** – Secretary of Transportation or the Secretary's designee.

**Service Agent (SA)** – Any person or entity, other than an employee of the employer, who provides services to employers and/ or employees in connection with D.O.T. drug and alcohol testing requirements. This includes, but is not limited to, collectors, BATs and STTs, laboratories, MROs, substance abuse professionals, and C/ TPAs. To act as service agents, persons and organizations must meet the qualifications set forth in 49 CFR Part 40. Service agents are not employers.

**Shipping Container** – Used for transporting and protecting urine specimen bottles and associated documents from the collection site to the laboratory.

**Specimen Bottle** – Bottle that, after being sealed and labeled is used to hold the urine specimen during transportation to the laboratory.

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**Split Sample** – A procedure in which the employee provided more than 30 ml of urine at the time of the collection and any urine in excess of 30 ml is put in a second specimen bottle. The second specimen should contain at least 15 ml. The first specimen is tested at the laboratory, and the second specimen bottle is stored for testing at a later time should the first specimen test positive. The split specimen is stored at the collection site, at the laboratory where the first specimen is being analyzed, or at a second SAMHSA lab. Upon notice of a positive test on the first specimen bottle, the employee may request within 72 hours that the second specimen bottle be tested, in accordance with company policy.

**Stand-down** – Practice of temporarily removing an employee from the performance of safety-sensitive functions based only on a report from a laboratory to the MRO of a confirmed positive test for a drug or drug metabolite, an adulterated test, or a substituted test, before the MRO has completed verification of the test result.

**Substance Abuse Professional (SAP)** – Person who evaluates employees who have violated a D.O.T. drug and alcohol regulation and makes recommendations concerning education, treatment, follow-up testing, and aftercare.

**Substituted Sample:** Urine sample, which does not exhibit the clinical signs or characteristics, associated with normal human urine.

**United States Coast Guard (USCG)** – The Office of Homeland Security agency that regulates drug testing in the Commercial Marine Industry.

**Validity Test** – Used to determine if a specimen is adulterated, diluted, or substituted.

**Verified Test** – Drug test result or validity testing result from an HHS-certified laboratory that has undergone review and final determination by the MRO.

## **6.0 Applicability**

- **Individuals Subject to Testing**

This Company policy applies to Class A, B, or C Commercial Driver's License (CDL) operators, designated to drive dump trucks with a gross vehicle weight rating (GVWR) of 26,001 lbs., towing trailers with a (GVWR) of 10,001 lbs., and transporting hazardous materials requiring placards.

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- Safety-sensitive Functions

1. Employees are not to engage in prohibited conduct covered by this policy, when the performance of duty requires the performance of safety sensitive functions.

2. To make clear what period of the work day employees are required to be in compliance with this policy, the following list is provided to set forth safety-sensitive functions:

- a. All time from when an employee begins work or is required to be in readiness to work until the time he/she is relieved from work and all responsibility for performing work;
- b. All time waiting to be dispatched, unless the employee has been relieved of duty;
- c. All time inspecting, servicing, or conditioning any commercial motor vehicle at any time;
- d. All driving time, and all time other than driving time;
- e. All time loading or unloading a vehicle, supervising, or assisting in the loading or unloading, attending a vehicle being loaded or unloaded, or remaining in readiness to operate the vehicle;
- f. All time repairing, obtaining assistance, or remaining in attendance upon a disabled vehicle; and
- g. All time performing the requirements relating to accidents.

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## **7.0 Prohibited Conduct**

Employees are prohibited from using, selling, possessing, distributing or being under the influence of controlled substances or alcohol while at work, or from reporting to work under the influence of a controlled substance or alcohol. The Company further prohibits all controlled substance use and any alcohol misuse that could affect the performance of driving a commercial motor vehicle or safety-sensitive duties including:

- Reporting or remaining on duty requiring the performance of safety-sensitive functions while having an alcohol concentration of 0.02 or greater.
- Reporting or remaining on duty requiring the performance of safety-sensitive functions when the employee uses any controlled substance, except when the use is pursuant to the instructions of a physician who has advised the employee that the substance does not adversely affect the employee's ability to safely operate a commercial motor vehicle.
- Operating a vehicle while in possession of alcohol, unless the alcohol is manifested and transported as part of a shipment.
- Using alcohol while performing safety-sensitive functions.
- Performing safety-sensitive functions for Global Water Resources within four hours after using alcohol.

## **8.0 Prohibited Substances**

- Controlled substances including marijuana, cocaine, opiates (heroin, codeine, morphine, etc.) amphetamines and phencyclidine ("PCP").
- Alcohol or any intoxicating beverage or food regardless of its alcohol content that is consumed at least four (4) hours before going on duty, operating or having physical control of a motor vehicle, or during the eight (8) hours following an accident or until such time as the employee undergoes a test.

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- Prescribed Medications that affect the employee's ability to safely operate a motor vehicle.
- Over-The-Counter Medications that affect the employee's ability to safely operate a motor vehicle.

### **9.0 Testing Circumstances**

- The Company requires the following types of drug/alcohol testing for its D.O.T applicable employees:
  1. Pre-employment/pre-duty testing;
  2. Random testing;
  3. Reasonable suspicion testing;
  4. Post-accident testing.
  5. Return-to-duty testing; and
  6. Follow-up testing.
- An employee is subject to testing under this Company policy, if it is required by the Department of Transportation (D.O.T.).
- Pre-Employment/Pre-Duty Testing
  1. Drug testing is required of all employees applying for safety-sensitive positions.
  2. An applicant must authorize previous employers to release information on the applicant's alcohol and controlled substances testing results. The applicant, if hired, must also authorize Global Water Resources to release information on the employee's alcohol and controlled substances testing results. Information on the previous three (3) years of alcohol and controlled substances testing results from the applicant's previous employers must be obtained and reviewed within fourteen (14) calendar days of first using the employee in a safety-sensitive position.



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3. Each applicant is notified that an offer to hire is contingent upon a negative drug test result. The Company will rescind an offer to hire for any applicant who refuses to submit to a test, refuses to provide an adequate specimen, substitutes the specimen of another person, or attempts to alter their own specimen. Any applicant who tests positive for the presence of controlled substances is considered medically unqualified to drive for Global Water Resources and will not be considered for a safety-sensitive position. The Company will inform the applicant that a confirmed presence of an illegal substance in the applicant's urine precludes them being hired.

- Random Testing of Safety-Sensitive Positions

1. A random selection process means that drug tests are unannounced and that every employee has an equal chance with every other employee to be tested every time a random test is performed. Place all eligible employees of the Company in a common selection pool. All employees remain in the random selection pool at all times, regardless of whether or not they have been previously selected for testing.

2. Under this provision, no "safe periods" for any employees exist. Each workday presents each employee with a new opportunity of having to test, with the odds being equal for all employees on each new day, regardless of tests previously undergone by any of them. Each selection for random testing includes all employees to whom the policy applies, regardless of whether or not they have been tested before.

- Reasonable Suspicion Testing

1. The Company's determination that reasonable suspicion exists to require an alcohol or drug test is based on specific or contemporaneous observations by a trained supervisor concerning the appearance, actions, behavior, speech, or body odors of the employee. Although reasonable suspicion testing does not require certainty, mere "hunches" are not sufficient to meet this standard.

2. Allow no employee suspected of being unfit for duty, at any time, to operate any moving machinery including the employee's personal vehicle. Therefore, a supervisor transports the employee to the specimen collection facility for testing. Upon return from the collection facility the employee is suspended from duty until the local Division Manager receives results of the test. A supervisor escorts the employee home. When negative test results are received, the employee is reinstated with back pay for the time period in which the suspension from duty applied.

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## **10.0 Post-Accident Testing**

- When an employee is involved in an accident involving a fatality, or the employee receives a citation for a moving violation arising from the accident and one or more vehicles must be towed from the accident scene, or one or more persons must receive medical treatment away from the accident scene, the employee should be tested for alcohol within two (2) hours (up to eight (8) in certain circumstances), and for controlled substances within thirty-two (32) hours of the accident.
- Any employee subject to post-accident testing who leaves the scene of an accident before a test is administered or fails to remain readily available for testing is deemed by the Company to have refused to submit to testing. This, of course, does not mean that necessary medical treatment for injured people should be delayed or that an employee cannot leave the scene of an accident for the period necessary to obtain assistance in responding to the accident or to obtain necessary emergency medical care.
- In the event the employee is so seriously injured the employee cannot provide a urine, breath or saliva specimen at the time of the accident, he/she must provide the necessary authorization for obtaining hospital reports or other documents that would indicate whether there are controlled substances or alcohol in his/her system at the time of the accident.
- If an employee is involved in a fatal accident and refuses to submit to testing, the refusal is considered an act of insubordination with disciplinary and employment consequences (Ref: HR Manual PR-e, Item 6(b)).

### **1. Instructions For Post-Accident Testing**

In post-accident situations, all Company employees are responsible for ensuring that a specimen collection is conducted. Should an employee be involved in an accident, which meets the criteria above, and if feasible, the employee should immediately notify the dispatcher via two-way radio. The dispatcher then informs the Division Manager, or designated supervisor, who respond to the accident scene.

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2. Return-to Duty Testing

Any employee who has violated any of the alcohol misuse or controlled substance use provisions of this policy must be tested with a negative controlled substance result, or a result indicating an alcohol concentration of less than 0.02 before return to a safety-sensitive function. Any employee who tests positive on a return-to-duty test or any test they are subject to thereafter is released from employment duties with this Company.

3. Follow-Up Testing

Any employee who has been identified by a Substance Abuse Professional (SAP) as needing assistance in resolving problems with alcohol misuse and/or controlled substances use and who has returned to duty involving the performance of a safety-sensitive function, is subject to follow-up alcohol and/or controlled substance tests administered by the Company. Any employee who tests positive on a follow-up test is released from employment duties with this Company.

## **11.0 Testing Methodology**

- Alcohol Testing

This policy requires both screening and confirmation tests for alcohol. Screening tests may be performed by use of a saliva-testing device, a non-evidential breath testing device, or an evidential breath testing (EBT) device. (All devices used for employee alcohol testing are D.O.T. approved.) Screening tests with a result of 0.02 alcohol concentration or greater must be confirmed by an EBT, which is capable of printing out each test result. Under certain circumstances involving reasonable suspicion or post-accident testing, the employee's blood may be drawn for testing.

- Controlled Substances Testing

This policy requires urine specimen collection and testing by urinalysis as required by D.O.T. Submit all urine specimens collected under this policy to a laboratory certified by the Department of Health and Human Services (DHHS) for testing. Subject all specimens initially testing positive to a subsequent confirmation test before being reported by the laboratory as positive. The laboratory may disclose laboratory test results only to the Medical Review Officer (MRO).

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• **Specimen Collection**

1. Any individual subject to testing under this policy is permitted to provide specimens in private. Provide a rest room stall or similar enclosure for urine specimen collections so that the individual is not observed while providing the sample. The employee must provide at least 45 ml of urine under the split sample method of collection. At least 15 ml is poured into a second bottle, and at least 30 ml remains in the primary specimen bottle.

2. When notified of a required test, the employee proceeds to the specimen collection site designated by the Company. The employee must submit a driver's license with a photo to the collector. In the event the specimen is being collected as part of a D.O.T. required physical examination, and the employee is required to disrobe for that examination, the specimen may be collected while the employee is wearing a hospital/examination gown.

3. If the individual is unable to provide such a quantity of urine, the collection site person shall instruct the individual to drink not more than 40 ounces of fluids, after a period of up to 3 hours, again attempt to provide a complete sample using a fresh collection container. The collection person discards the original insufficient specimen. If the employee is still unable to provide an adequate specimen, the insufficient specimen is discarded, testing discontinued, and the employee so notified. The MRO refers the individual for a medical evaluation to develop pertinent information concerning whether the individual's inability to provide a specimen is genuine or constitutes a refusal to test.

• **Medical Review Officer (MRO)**

1. The Company has retained the services of a qualified Medical Review Officer (MRO), who is a licensed physician experienced in substance abuse. The laboratory reports all laboratory test results to the MRO. Negative test results reported as such by the MRO to the Company. Before reporting a positive test result to the Company, the MRO attempted to contact the employee to discuss the test result. If the MRO is unable to contact the employee directly, the MRO contacts the Local Division Manager, who in turn contacts the employee and directs the employee to contact the MRO. Upon being so directed, the employee contacts the MRO immediately or, if after the MRO's business hours and the MRO is unavailable, at the start of the MRO's next business day. If the employee fails to contact the MRO within 5 days after being requested to do so, the employee's positive test result is verified as positive.

2. The MRO must review all medical records made available by the tested employee when a confirmed positive test could have resulted from legally prescribed medication. Evidence to justify a positive result may include, but is not limited to a valid prescription or verification from the individual's physician verifying a valid prescription.

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3. Individuals are not entitled, however, to present evidence to the MRO in a trial type administrative proceeding, although the MRO has the discretion to accept evidence in any manner the MRO deems most efficient or necessary. If the MRO determines there is no justification for the positive result, such results are considered a verified positive test result. The MRO immediately contacts the Administration Support Assistant upon obtaining a verified positive test result.

4. Any positive result which the MRO justifies by acceptable and appropriate medical or scientific documentation to account for the result as other than intentional ingestion of an illegal drug is treated as a negative test result and may not be released for purposes of identifying illegal drug.

- Request for Testing of the Split Specimen

1. If the test result of the primary specimen is positive, the employee may request that the MRO direct the split specimen to be tested in a different DHHS-certified laboratory for presence of the drug(s) for which a positive result was obtained in the test of the primary specimen. The MRO shall honor such a request if it is made within 72 hours of the employee having been notified of a verified positive result. All re-tests meeting such standards are performed at the financial responsibility of the requesting employee.

2. If the analysis of the split specimen fails to reconfirm the presence of the drug(s) or drug metabolite(s) found in the primary specimen, or if the split specimen is unavailable, inadequate for testing or unable to be tested, the MRO shall cancel the test and report cancellation and the reasons for it to the Company and the employee.

3. If an employee has not contacted the MRO within 72 hours, the employee may present to the MRO information documenting that serious illness, injury, inability to contact the MRO, lack of actual notice of the verified positive test, or other circumstances unavoidably prevented the employee from timely contacting the MRO. If the MRO concludes that there is a legitimate explanation for the employee's failure to contact the MRO within 72 hours, the analysis of the split specimen is performed.

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**12.0 Consequences For Test Results**

• Voluntary Referral

The Division Manager makes decisions whether to discipline a voluntary referral on a case-by-case basis, depending upon the facts and circumstances. Although an absolute bar to discipline cannot be provided due to safety factors, the Division Manager, in determining whether to discipline, considers that the employee has come forward voluntarily. In coming forward voluntarily, an employee may volunteer for a drug or alcohol test as a means of identification under current company policy.

• Refusal to be Tested

1. Subject any employee who refuses to submit to a drug or alcohol test when so required to suspension without pay during a time period for investigation to determine final action up to and including discharge from Company service.

2. The following conditions are treated as a refusal to test:

a. An employee subject to a post-accident test who leaves the scene of the accident before being tested (except when necessary to receive medical treatment) and is not reasonably available for a test is deemed to have refused to submit to a required test;

b. An employee, who screens positive for alcohol and refuses the confirmation test;

c. Failure to provide adequate breath, saliva or urine for testing when required without a valid medical explanation;

d. Engaging in conduct that clearly obstructs the testing process;

e. Failure to sign the alcohol or urine testing form, as required;

f. Refusing to permit the release of test results;

g. Attempts to alter or substitute a specimen; and

h. Failure to appear for testing without a deferral

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• **Consequences for Positive Test Results**

1. An employee is prohibited from performing, and this Company does not use an employee to perform, safety-sensitive functions after a positive drug test result or an alcohol test result indicating a 0.02 or greater blood alcohol content, regardless of when the drug or alcohol was ingested and regardless of whether or not the employee is under the influence of alcohol or drugs.

2. Negative tests are alcohol test results of less than 0.02. Send home for the day without pay any employee found to have a measurable amount of alcohol in their system, test results indicating from 0.02 to 0.039 and remove them from performing safety-sensitive functions for at least a twenty-four (24) hour period.

The second such incident results in the employee's suspension without pay during a time period for investigation to determine final action up to and including discharge from Company service.

Suspend any employee whose alcohol test result is 0.04 or greater, or whose drug test result is verified as positive, without pay during a time period for investigation to determine final action up to and including discharge from Company service. It is recommended that the employee be referred to a Substance Abuse Professional for evaluation.

• **Substance Abuse Professional (SAP)**

1. The rules require that employees who test positive be referred to a Substance Abuse Professional (SAP). The SAP must be a licensed physician (with a Medical Doctor or Doctor of osteopathy degree) with knowledge of and clinical experience in the diagnosis and treatment of alcohol/drug-related disorders (the degrees alone do not confer this knowledge), or a licensed or certified psychologist, social worker, or employee assistance professional with knowledge of and clinical experience in the diagnosis and treatment of alcohol/drug-related disorders.

2. The SAP must evaluate the employee to determine whether the employee needs assistance resolving problems associated with alcohol misuse or controlled substance use, and refer the employee for any necessary treatment. Financial responsibility for SAP services and any required treatment is the responsibility of the Company. Healthcare benefits may be utilized by the employee to offset the costs associated with SAP evaluations/required treatment.

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3. After completing this requirement, the employee must take a return-to-duty test with a negative result, before being returned to safety-sensitive duties. The employee is then subject to unannounced follow-up testing. This testing could be for drugs, alcohol or both should there be poly-drug misuse.

4. The returned employee must be subject to at least 6 follow-up tests within the first year of returning to duty. The SAP can direct additional testing during this period or for an additional period up to a maximum of 60 months from the date the employee returned to duty. The SAP can terminate the requirement for the follow-up testing in excess of the minimum at any time, if the SAP determines that the testing is no longer necessary.

### **13.0 Training And Education**

- It is the belief of the Company that training is an integral part of the success of the Company's substance abuse program and instrumental to employee awareness of substance abuse. Training is therefore viewed as a shared responsibility of management and employees in order to accomplish the mutual benefit of a substance-free work environment.
  
- Responsibility for the development of employee training programs is assigned to the Local Division Manager, who reviews training needs at regular intervals to assure that effective training is accomplished within the Company's financial resources and training priorities. Such training programs may include lectures, video presentations, reading assignments or such other methods as may be instrumental in broadening the knowledge of employees in the area of substance abuse.
  
- Training material content includes factual information on the effects of alcohol misuse and controlled substances use on personal life, health, and safety in the work environment; signs and symptoms of alcohol misuse and controlled substances use (the employee's or co-worker's); where help can be obtained; and available intervention methods, including confrontation when an alcohol or a controlled substances problem is suspected and referral to management.
  
- Responsibility for substance abuse training and observance of the Company's established policies and procedures are shared equally by each employee. In this regard, employees are responsible for attending, learning, and applying the information provided by in-service training. Provide training for all employees at the following specified times:



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1. Initial training for all current employees, upon establishment of the Company's Substance Abuse Policy.
2. Initial training for new employees, upon hiring and prior to assignment of safety sensitive job duties.
3. Provide employees training when transferred into a position requiring the performance of safety-sensitive duties.

- In addition to the training required by all employees, supervisors and others designated to determine whether reasonable suspicion exists to require an alcohol or drug test receive at least sixty (60) minutes of training on the physical, behavioral, speech, and performance indicators of probable alcohol misuse, and at least sixty (60) minutes of training on the physical, behavioral, speech, and performance indicators of probable controlled substances use.

- Document all substance abuse training for each on a form designated by the Division Manager. Maintain these forms in the employee's personnel file, or another designated file, for three (3) years.

#### **14.0 Reports And Records**

All testing information specifically relating to individuals is confidential and is treated as such by anyone authorized to review or compile program records. To preserve employee confidentiality, the Company does not release information pertaining to an individual's test or any violation of D.O.T. rules, except as required by law. The Company may disclose information required to be maintained in this policy pertaining to a covered employee to:

- That employee
- Or to the decision-maker in a lawsuit, grievance, or other proceeding initiated by or on behalf of the individual, and arising from the results of an alcohol or controlled substances test;
- Or from the Company's determination that the employee engaged in conduct prohibited by D.O.T. (including but not limited to, a workers' compensation, unemployment compensation, or other proceeding relating to a benefit sought by the employee).

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**Confidentiality of Records in General**

In order to implement this order efficiently and to make information readily retrievable, the Local Division Manager shall maintain all records relating to reasonable suspicion and post-accident testing, suspicion of tampering with evidence, and any other authorized documentation necessary. All records and information of the personnel actions taken on employees with verified positive test results shall remain confidential, locked in a safe/cabinet, with only authorized individuals who have a “need-to-know” having access to them.

**Employee Access to Records**

An employee subject to testing is entitled, upon written request, to obtain copies of any records pertaining to the employee’s use of alcohol or controlled substances, including any records pertaining to his or her tests. The Local Division Manager shall promptly provide the records requested by the employee at no charge to the employee.

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# HEALTH & SAFETY PROCEDURES MANUAL

## ELECTRICAL SAFETY

### 1.0 Purpose

The purpose of this standard operating procedure is to define safe electrical operating practices within Global Water Resources operations.

### 2.0 Scope

The Company has developed guidelines for electrical safety and equipment and to comply with 29 CFR 1910.303 and the NFPA 70E Electrical Safety Standard 2008 Edition.

### 3.0 Responsibilities

#### 3.1 Supervisors

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that appropriate protective equipment is provided, as outlined in the NFPA 70E standards ([attachment #2](#) and [attachment #3](#)), that employees are familiar with the requirements and operations are conducted in a safe manner; within company policy, applicable local, state and federal regulations. To insure that Arc Flash protection boundaries are established in accordance with the company's Arc Flash Protection safety standard ([attachment #1](#)). To insure Energized Electrical Permits ([attachment #4](#)) are used when employees are required to work on energized electrical equipment as outlined in the company's Arc Flash Protection safety policies.

#### 3.2 Employees

Employees are responsible for performing work in accordance with this procedure.

### 4.0 General

Unqualified plant personnel (excluding electrical and instrumentation contractors and supervisors) will not perform any electrical maintenance on > 50 volt or higher voltage equipment such as plant circuits, controls, switchgear, etc. Management authorizes all exceptions in writing with detailed instructions (See GWR [Arc Flash Procedure](#)).

“Qualified personnel must be have knowledge in the construction and operation of equipment or specific work method and be trained in NFPA 70E Arc Flash Protection.

Electrical breaker and/or motor control starters and/or switchgear and/or re-closers, will be locked out, as appropriate, before any electrical or mechanical work is performed on equipment (see [Lockout/Tag-out Procedure](#)). Initiate electrical lockout procedures prior

to performing maintenance on any electrical equipment in accordance with the [Lockout/Tag-out](#) procedure.

## **5.0 Recognizing Hazards**

- Inadequate wiring is dangerous. Using too small of gauge wire for the load can cause the wire to overheat and become a fire hazard.
- Exposed electrical parts are dangerous. Report missing conduit and/or equipment covers.
- Overhead power lines are dangerous. Use extreme care with boom equipment under or near power lines.
- Insulation that is defective or inadequate is an electrical hazard. Report it to your supervisor.
- Electrical systems and tools that are not grounded or double insulated are dangerous. Only hand tools that are grounded or double insulated will be used.
- Overloads in an electrical system are hazardous because they can produce heat or arcing conditions.
- Report/replace any damaged power tools and equipment to your immediate supervisor.
- Working in wet conditions is hazardous because you may become an easy path for electrical current.

## **6.0 Evaluating Hazards**

- Tripped circuit breakers and blown fuses show that too much current is flowing in the circuit. This condition could be due to several factors, such as malfunction equipment or a short between conductors.
- If an electrical tool, appliance, wire, or connection feels warm, it may indicate too much current in the circuit in the circuit or equipment.
- If an extension cord feels warm, it may indicate too much current for the size of the cord.
- A burning odor may indicate overheated insulation.

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## **ELECTRICAL SAFETY**

### **7.0 Controlling Hazards**

- Treat all conductors as if they are energized until they are locked out and tagged.
- Lock out and tag-out circuits and machines being worked on.
- Prevent exposure to live wires and parts by using insulation.
- Prevent shocking currents from electrical systems and tools by grounding them.
- Immediately report exposed live parts to a supervisor.
- Replace covers removed from panels, junction boxes, motors, or fuse boxes.
- Close unused conduit openings in boxes so that foreign objects cannot get inside and damage the circuit.
- Use ground fault circuit interrupters anytime electrical components are exposed to water hazards.
- Maintain a minimum distance of 10 feet anytime work involves exposure to high voltage (>600 Volts) overhead lines.
- Do not use extension cords as permanent wiring.
- Allow no splicing of extension cords.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EMERGENCY RESPONSE**

### **1.0 Purpose**

The purpose of this procedure is to describe the guidelines for establishing an Emergency Response Plan (ERP).

### **2.0 Scope**

This procedure is applicable to all Global Water Resources locations.

### **3.0 Responsibilities**

Operations Managers/Supervisors share the responsibilities of the development and implementation of facility/jobsite specific aspects of the ERP. These include the following:

- Designating an onsite leader.
- Developing and reviewing the ERP for each Company water/wastewater treatment plant and ancillary facilities.
- Reviewing the job site specific ERP with all job site employees, contractors and client/customer representatives.
- Contacting and coordinating with the Company's Regional Management in regard to interfacing with the media and governmental agencies – state agency and/or OSHA.
- Assessing the situation and taking appropriate action to minimize hazardous situations and exposures to Company employees and contracted personnel.
- Posting the ERP where all employees, contractors and suppliers can see and read its provisions.
- Directing all efforts in the area including evacuation of personnel and minimizing property losses.
- Identifying contractor safety representatives to serve as ERP points of contact.

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## **EMERGENCY RESPONSE**

- Ensure all contractors comply with the Company's provisions of the ERP as appropriate. The contractors are also responsible to convey this information to their employees.
- Coordinating emergency operations with their local fire departments.

### **4.0 Definitions**

**Consequence Management** – Measures to protect public health and safety, restore essential services and provide emergency relief to businesses and individuals affected by the consequences of a terrorist incident.

**Crisis Management** – Measures to identify, acquire and plan the use of resources to anticipate, prevent and/or resolve a threat or act of terrorism. Predominately a law enforcement response.

**Emergency** – Serious or unexpected situation that demands an immediate action:

- To protect the life of employees, contractors and the public
- Threats to our public image or our financial and legal wellbeing.
- To protect our facilities and the environment

Emergencies covered under this plan include:

- Accidental or Man-made Disasters: chemical spills, dam failures, toxic gas releases, explosions or fires.
- Natural Disasters: hurricanes, flooding, dam failures, tornadoes, earthquakes, fires or winter storms.
- Terrorism or Vandalism: sabotage, riots, work stoppages and deliberate water contamination.

The Operational Management Department provides guidance and training support in the development and implementation of this plan as needed.

Please refer to the local Emergency Response Plan for specific information.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EMERGENCY SHOWER & EYE WASH EQUIPMENT**

### **1.0 Purpose**

This procedure describes the use, maintenance, and inspection of Emergency Showers and Eye Wash Equipment.

### **2.0 Scope**

This procedure is applicable to all Global Water Resources operations.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and reporting any deficiencies to their supervisor.

### **4.0 Procedure**

In compliance with the Federal Occupational Safety and Health Administration Standard 29 CFR 1910.151(c), the following policy is adopted within the Company.

- Safety showers and eyewash fountains are required for immediate emergency use in any area where the eyes or body may be exposed to injurious materials. They may also be used for extinguishing clothing fires or for flushing of clothing.
- Eyewash fountains and safety showers will be strategically installed so the distance from the hazard or work station does not exceed 25 feet, or 15 seconds travel time.
- Units must be easy to locate and, optimally, be located in the normal path of egress.
- Multiple spray emergency showers are designed to direct large quantities of water over the entire body.



## **HEALTH & SAFETY PROCEDURES MANUAL** **EMERGENCY SHOWER & EYE WASH EQUIPMENT**

- An emergency blanket must be stored nearby for treatment of shock.
- Emergency shower and eyewash fountain activation may be by a ring, chain, triangle, pull bar, push bar, or treadle. The method is to be uniform throughout the plant or establishment, and in most cases, the shower should remain open once actuated.
- A preventative maintenance program documenting operation and monthly inspection must be maintained.
- All emergency showers and eyewash fountains are to be distinctively marked in a uniform manner throughout the plant. Marking may be a painted circle, contrasting colored tile, or other markings on the floor, or signs posted on walls or columns.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ERGONOMICS PROGRAM**

### **1.0 Purpose**

To reduce ergonomic injury exposures in the workplace, and to protect employees from musculo-skeletal disorders and ergonomic risk factors while maintaining appropriate production efficiencies.

### **2.0 Scope**

The Company designed this section for all operating companies.

### **3.0 Responsibilities**

#### **• Manager**

1. Provide resources to manage the ergonomic process and implement corrective actions.
2. Review and recommend capital expenditures for ergonomic engineering solutions.

#### **• Operations Manager**

1. Participate in training and job safety improvement activities.
2. Conduct ergonomic discussions during management meetings and communicate progress to all levels of the organization.
3. Support ergonomic improvements.
4. Participate and monitor progress of the ergonomic process.

#### **• Supervisor**

1. Respond to employee concerns of musculo-skeletal related symptoms by following the ergonomic and medical management procedures.
2. Conduct periodic observations of work areas to identify ergonomic hazards and measure progress in reducing employee risk to musculo-skeletal disorders.
3. Recognize job tasks and work practices that present potential ergonomic exposures in their work areas.
4. Correct employee work practices or methods that may increase ergonomic stresses.

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## **ERGONOMICS PROGRAM**

5. Develop and test solutions to reduce ergonomic risk factors.
6. Maintain awareness of ergonomics among their employees.
7. Assist the ergonomic analysis and problem-solving activities for job tasks in their areas.
8. Maintain all documentation on musculo-skeletal disorder incidents, treatment and follow-up analysis.

### **• Employee**

1. Identify jobs and job tasks with significant ergonomic risk factors.
2. Provide input on current work methods and workstation designs.
3. Offer feedback on ergonomic improvements.
4. Present suggestions for controlling workplace risk factors.
5. Implement ergonomic concepts on the job.
6. Report all suspected Repetitive Motion Injuries (RMIs) symptoms or ergonomic concerns to their Management Teams and/or Human Resource Representative.

### **• Health & Safety Committee**

1. Assist in workstation evaluations and exposure assessments.
2. Communicate and maintain employee and management awareness of the ongoing ergonomic activities in the facility.
3. Assist in ergonomic analyses and workstation evaluations of the workplace based on the exposure assessments.
4. Promote ergonomic warm up/stretching programs.
5. Assist in ergonomic training activities.
6. Identify common behaviors and work habits that increase ergonomic risk factors to employees in the facility.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ERGONOMICS PROGRAM**

### **• Operational Management**

1. Establish objectives and criteria for the ergonomic program.
2. Develop the plan for implementing ergonomic analysis and training.
3. Ensure processes are in place to facilitate the ergonomic activities and corrective actions.
4. Provide technical assistance.
5. Assist with cost justification of ergonomic solutions.
6. Perform loss trending to assist with the prioritization of the ergonomic activities.
7. Advise management on ergonomic issues and regulatory changes.
8. Audit the ergonomic process periodically and modify the system as necessary to increase its effectiveness.

### **4.0 General**

The goal of this program is to minimize repetitive motion injuries (RMIs). The program includes:

- Worksite evaluations for exposures which have caused or can potentially cause RMIs.
- Corrective measures such as work station redesign, adjustable fixtures or tool redesign, and administrative controls including job rotation and work breaks.
- Training programs that:
  1. Explain the company ergonomics program;
  2. Outline possible exposures associated with RMIs;
  3. Define the symptoms and consequences of injuries caused by RMIs;
  4. Emphasize the importance of reporting symptoms and injuries; and
  5. Teach the methods used to minimize RMIs.

# HEALTH & SAFETY PROCEDURES MANUAL

## ERGONOMICS PROGRAM

### 5.0 Worksite or Facility Evaluations

Where more than one RMI is reported within the same department and within a 12 month period, the following will be performed:

- A certified ergonomist or independent consultant will evaluate a representative number of applicable job processes. This evaluation will identify potentially exposed employees and advise on the methods to control or minimize these exposures.
- Records of all jobs will be maintained to determine which process and tasks have been evaluated.
- These evaluation records will be available for employee review.
- Management will be advised on how to implement appropriate control measures.

### 6.0 Workstation Assessments

A certified ergonomist or independent consultant will complete workstation assessments to include:

- A review of available loss information including: OSHA 300 logs; supervisor first reports of injury; workers' compensation loss runs; first aid logs; and medical benefit records if available;
- A facility tour to identify jobs with ergonomic risk factors (see [Ergonomic Risk Assessment Checklist](#));
- Employee feedback;
- Discussions with department management at opening /closing conferences.
- A report listing areas of concern, agreed upon solutions and action plans for implementing the recommendations.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ERGONOMICS PROGRAM**

### **7.0 Controlling RMI Exposures**

It is the company's practice to correct exposures that have caused RMI or if the exposure is not capable of being corrected, to minimize exposure to the extent feasible. It is the company's practice to consider the following engineering and administrative controls in determining how to correct or minimize exposures:

Engineering Controls: Workstation modification or redesign and/or adjustable equipment (see [VDT Evaluation](#)) and accessories (see [Computer Workstation Accessories](#)).

- Administrative Controls: Job rotation and/or alternative work breaks.

### **8.0 Training**

The training program includes an explanation of the following:

- The company ergonomics program;
- The possible exposures associated with RMI;
- The symptoms and consequences of injuries caused by RMI;
- The importance of reporting symptoms and injuries; and
- The methods used to minimize RMI.

#### **Training Frequency**

- One time training for all employees trained initially as part of the establishment of the ergonomics program, plus periodical training as needed to maintain ergonomic awareness;
- Periodic training for all employees upon identification of previously unknown ergonomic hazards;
- Periodic training for specific employees upon completion of a worksite evaluation which identifies exposures which may have caused RMI;
- Periodic training for all employees who are potentially exposed;

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **ERGONOMICS PROGRAM**

- One time training for all employees given new job assignments for which training has not been previously received;
- One time training for new hires.

### **9.0 Recordkeeping**

- Maintain the records at each operating location.
- See [Ergonomic Job Analysis](#), [Ergonomic Risk Assessment Checklist](#), and [Ergonomic Workstation Evaluation](#).

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

### **1.0 Purpose**

To establish safety procedures associated with excavation/trenching, concentrating on the safeguards necessary to prevent cave-ins and other inherent hazards associated with this type of work activity

### **2.0 Scope**

This procedure applies to all Global Water Resources employees exposed to excavation/trenching hazards while performing work including water main repair(s), new service line, main and/or hydrant installation(s) or any other similar type of work

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed; that appropriate equipment for safe operations is provided; that employees are familiar with the requirements of this procedure and the hazards associated with trenching and excavation; and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

### **4.0 Definitions**

**Competent Person** – An individual who, through training and experience, is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

**Excavation** – The width of the hole is greater than the depth

**Five Foot Rule** – The depth at which a normal trench or excavation requires cave-in protection. Depending on the conditions and type of soil, cave-in protection may, from time to time, be necessary at depths less than 5 feet



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

**Trench** – The depth of hole is greater than the width

**Unconfined Compression Strength of Soil** - The load per unit at which soil will fail during compression. This measurement can be determined via

- Laboratory testing.
- Use of pocket penetrometer or torvain
- Thumb penetration testing.
- Plasticity rolling of soil.

### **5.0 Locating Underground Utilities**

- Underground utility marking (sewer, telephone, gas, electric, cable) must be requested in accordance with local, state or federal regulation prior to the commencement of any excavation.
- Expiration of locates will vary from state to state. It is the responsibility of the supervisor to be aware of the expiration date to ensure compliance.
- Depending on specific state requirements, there is a grace area of usually 18”-24” on either side of a locate mark that has to be honored when digging.

### **6.0 Heavy Equipment Transport**

- Equipment must be positively secured, usually by chains, when transported to and from a job site via a transport vehicle. This would include backhoes, trench boxes and all other heavier types of equipment or tools.
- Extreme caution must be exercised when driving a backhoe to a job site. A triangular “Slow Moving Vehicle” sign should be prevalently placed somewhere on the rear end of the backhoe.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

### **7.0 Safety Related Equipment At Job Site**

- Fire Extinguishers.
- First Aid Kits.
- Material Safety Data Sheets (MSDS' s) for any chemicals that are or could be in use.
- Competent Person Form (see [Excavation – Competent Person Checklist](#)).
- Tabulated data from the manufacturer of equipment (ex: trench boxes, hydraulic aluminum shoring) that verifies that the equipment has met all mandatory safety requirements.

### **8.0 Personal Protective Equipment**

- Hard Hat use is required during all excavation activities unless employee is in control pulpit (cab) of a backhoe that is protected by an overhead guard/cage.
- Steel Toed Safety Shoes.
- High Visibility Traffic Vest for all after dark activities and also all work activities in a street or in close proximity (within 5 feet) of a street.
- Eye/Face Protection (in the form of side shield safety glasses or full face shields) whenever the possibility of airborne projectiles could come in contact with an employee's eyes and/or face (ex: using a jack hammer or pipe saw).
- Hearing Protection (ear plugs or muffs) whenever an employee is exposed to high noise levels exceeding 85 decibels (ex: working adjacent to an air compressor in use, jack hammer, pipe saw).

### **9.0 Vehicular Traffic Control**

- Must be utilized at all work sites in or near the street.
- Can be maintained by using traffic cones, signs, and/or flagmen.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

- Must be clearly visible to vehicular traffic as it approaches from both directions of the work site.
- At least two sets of traffic control warning signs are necessary in order to give oncoming traffic sufficient advance warning of work/personnel ahead.

### **10.0 Classification/Types Of Soil**

- **Stable Rock** – natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
- **Type A** – Cohesive soils with an unconfined compression strength of 1.5 tons per square foot or greater (example: most types of clay).
- **Type B** – Cohesive soil with an unconfined compression strength of greater than 0.5 tons per square foot but less than 1.5 tons per square foot (example: angular gravel, similar to crushed rock, rock that is not stable).
- **Type C** – Cohesive soil with an unconfined compression strength of less than 0.5 tons per square foot (example: sand).

- Important: soil classification must be reevaluated, and most of the time reclassified, if the soil in question has been saturated with water.

- Unless otherwise specified through documented testing, soil will be considered **Type C**.

### **11.0 Cave-In Protection**

This is the most important safeguard associated with digging activities. It is of utmost importance to protect employees from cave-in and the strength and potentially deadly power of soil as it collapses. One cubic yard of soil is equivalent to 2,000 pounds of force.

### **13.0 Types Of Cave-In Protection**

- **Sloping** – method of protecting employees by excavating to form sides of an excavation/trench that is inclined away from the hole. This is referred to as the “angle of repose”.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

- **Benching** – method of protecting employees by excavating the sides of an excavation/trench to form one, or a series of, horizontal levels or steps, usually with vertical or near vertical surfaces between levels
  
- **Shoring** – a pre-engineered system, usually comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such systems are designed specifically to support the sidewalls of an excavation. Specialized plywood or sheeting (at least ¾” thick) are many times used in conjunction with the shoring and are placed against the side walls of the excavation/trench.
  
- **Trench Shields/Box** – a structure that is able to withstand the forces imposed on it by a cave-in and protect employees within the structure. Shields can be permanent structures or can be designed to be portable and move along as work progresses.

Additionally, shields can be either pre-manufactured or job built in accordance with manufacturer’s specifications.

- **Combination** –utilizing any two or more of the aforementioned methods to ensure sufficient cave-in protection

### **13.0 Angle(s) Of Repose For Sloping Protection**

- Type A Soil: ¾’ (horizontal) to 1’ (vertical)
  
- Type B Soil: 1’ (horizontal) to 1’ (vertical)
  
- Type C Soil: 1.5’ (horizontal) to 1’ (vertical)

### **14.0 Means Of Egress Within Excavations**

- A stairway, ladder, ramp or other safe means of egress must be located in trenches/excavations that are greater than 4’ in depth so as to require no more than 25’ of lateral travel for employees
  
- Ladders must extend a minimum of 3’ outside the top edge of an excavation/trench and must be secured from tipping

# **HEALTH & SAFETY PROCEDURES MANUAL** **EXCAVATION, SHORING & TRENCHING**

## **15.0 Two (2) Foot Rule**

- All spoils (soil removed from hole when excavating) must be kept a minimum distance of 2' from the trench/excavation edge
- All equipment and tools must be kept a minimum distance of 2' from the trench/excavation edge

## **16.0 Surface Encumbrances, Adjacent Structures And Access Around The Excavation**

- Surface encumbrances and adjacent structures (ex: street lights, poles, street signs) that are located so as to create a hazard shall be removed and/or supported as necessary. Support systems for use include shoring, bracing, and/or underpinning to maintain stability
- Fall Protection-where applicable walkways shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with CFR 1926. 502(b) shall be provided where walkways are 6 feet (1.8m) or more above lower levels.

## **17.0 Exposure To Falling Loads**

No employee shall be permitted underneath loads handled by lifting, hoisting, or digging equipment

## **18.0 Warning Systems For Mobile Equipment**

When mobile equipment is operated adjacent to an excavation and the operator does not have a clear view of the edge, a warning system shall be utilized such as barricades, hand signals, and/or stop logs

## **19.0 Hazardous Atmospheres**

If necessary, atmospheric sampling shall be performed prior to employee exposure within the excavation. Some excavations may also be treated as confined spaces.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **EXCAVATION, SHORING & TRENCHING**

### **20.0 Water Accumulation**

Employees shall not work in excavations in which there are heavy levels of accumulated water, including runoff from rain storms, unless adequate precautions (pumping activities) have been taken to protect employees. The competent person has the responsibility to monitor water levels

### **21.0 Inspections**

- Daily inspections of excavations, the adjacent areas, and protective systems shall be made by the competent person. These inspections shall be performed prior to the start of work and as needed throughout the job. Inspections shall also be made after every rainstorm or other hazard increasing event
- Where the competent person finds evidence of a situation that could result in possible cave-in, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

### **22.0 Miscellaneous Trench Shield Requirements**

- Trench shields shall be installed in a manner to restrict lateral or hazardous movement of the shield in the event of a sudden soil shift. Lateral/horizontal movement can be negated by backfilling soil to lessen the gap between the sides of the shield and the excavation edge
- Excavation of material to a level no greater than 2' below the bottom of a support system shall be permitted
- A minimum distance of 18" shall be maintained between the top of a trench shield and the soil below

### **23.0 Twenty (20) Foot Rule**

All excavation cave-in protection systems must be designed by a professional engineer when the excavation exceeds 20' in depth. For manufactured shoring systems intended for use at depths of 20 feet or greater, sign off by a registered engineer must be provided and kept on file.

# **HEALTH & SAFETY PROCEDURES MANUAL** **EXCAVATION, SHORING & TRENCHING**

## **24.0 After Hour Protection**

Unless prohibited, all trenches/excavations must be either backfilled or plated in accordance with local or state regulations. In addition, traffic cones, warning lights, barricades, caution/warning tape (or a combination of two, three, or all methods) may be required as additional safe guards to protect the excavated area

## **25.0 Training**

- All Global Water Resources employees working in trenches/excavations must receive initial, excavation safety training before engaging in excavation work activity(s) and will be trained as “Competent Person”
- Objective testing will be part of the training curriculum to ensure participants comprehend the training provided
- Refresher training will be conducted regularly. Refresher training is required only when new hazards are introduced, procedures have changed or the employee’s actions or behavior evidences a need for refresher training. Depending on their needs, certain operating units may require this training annually

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# HEALTH & SAFETY PROCEDURES MANUAL

## FALL PROTECTION

### 1.0 Purpose

The purpose of this standard operating procedure is to define fall protection practices within Global Water Resources operations.

### 2.0 Scope

To establish proper procedures to protect workers who may be exposed to fall hazards where the distance between one surface and the next is 4 feet or greater in plant facilities or 6 feet or greater in construction operations. These procedures apply to all Global Water Resources operations and construction activities.

### 3.0 Responsibilities

#### 3.1 Supervisors

It is the supervisor's responsibility to ensure that all employees have been trained, understand and comply with fall protection procedures and that appropriate personal protective equipment for fall protection is available.

#### 3.2 Employees

Employees are responsible for complying with this procedure.

### 4.0 Definitions

**100% Tie-off** – The practice of continuously being attached to a secure anchorage when working in areas requiring personal fall arrest equipment. This normally requires the use of two shock absorbing lanyards, one of which must be connected to a secure anchorage at all times.

**Anchorage Point** – A secure point of attachment for lifelines, lanyards or deceleration devices. An anchorage point must be capable of supporting at least 5,000 pounds (22.2 kN) per employee attached.

**Body Harness** – A device with straps which may be secured to an employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with a means of attaching it to other components of the personal fall arrest system. The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head.



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## FALL PROTECTION

**Deceleration Device** – Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards. Main purpose of this device is to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

**Guardrail System** – A barrier erected to prevent employees from falling to lower levels. The top rail height of the guardrail system shall be 42 inches (1.1m) plus or minus 3 inches (8 cm) above the walking/working surface. The guardrail system shall be capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied within 2 inches (5.1 cm) of the top of the edge, in any outward, or downward direction, at any point along the edge.

**Hole** – A gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.

**Lanyard** – A flexible line of rope, wire, or strap equipped with a deceleration device (shock absorber) which generally has a connector at each end for connecting to a body harness, lifeline and/or anchorage.

**Lower Levels** – Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

**Opening** – A gap or void 30 inches (76 cm) or more high and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

**Personal Fall Arrest System** – A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations.

**Self-Retracting Lifeline** – A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall automatically locks the drum and arrests the fall.

**Snap-hook** – A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive and object and, when released automatically closes to retain the object. Only a locking type snap-hook with a self-closing keeper which remains closed and locked until unlocked and pressed open for connection or disconnection is allowed.

**Steep Roof** – A roof having a slope greater than 4 in 12 (vertical to horizontal).

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FALL PROTECTION**

**Toe boards** – A low protective barrier that will prevent the fall of materials and equipment to lower levels. Toe boards shall be a minimum of 3 1/2 inches (9 cm) in vertical height from their walking/working surface. Toe boards will have not more than 1/4 inch (0.6 cm) clearance above the walking/working surface. Toe boards will be solid or have openings not over 1 inch (2.5 cm) in greatest dimension. Toe boards will be capable of withstanding 50 pounds (222 kN) force applied in any downward or outward direction.

**Walking/Working Surfaces** – Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties (see [Walking/Working Surfaces Procedure](#) for further information).

### **5.0 General Requirements**

- Body/waist belts are not allowed for fall protection.
  
- Full body harnesses with shock absorbing lanyards must be used for fall arrest. Two lanyards may be required to maintain 100% tie off if an employee must travel from one position to another.
  
- Anchorages used for fall protection must be capable of supporting 5,000 pounds per person or twice the intended load, as determined by a qualified person.
  
- All fall protection equipment shall be inspected before each use. Defective or damaged equipment shall be removed from service. Faded or missing labels and equipment five years or older shall be removed from service.
  
- Personal fall arrest system components subjected to impact loading shall be removed from service. All fall arrest equipment shall be maintained in accordance with manufacturer's recommendations.
  
- Any personal fall arrest system shall be rigged so that an employee can neither free fall more than 6 feet, nor contact any lower level. For non-construction activities, the free fall limit is 4 feet.
  
- All workers in approved personnel aerial lifts must use a personal fall arrest system, with the lanyard attached to an approved anchorage on the boom or basket (see [Aerial Lifts Procedure](#)).

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FALL PROTECTION**

- When engaged in construction activities, all employees on a walking/working surface 6 feet (1.8 m) or more above a lower level and less than 6 feet from the edge shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. At fixed facilities, fall protection must be utilized when exposed to falls over 4 feet.
  
- Each employee on ramps, runways, and other walkways shall be protected from falling 4 feet or more to lower levels by a guardrail system or by utilizing fall arrest equipment.
  
- Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 4 feet above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.
  
- Any employee working on a steep roof, vessel, tank or other structure with unprotected sides and edges 4 feet or more above lower levels shall be protected from falling by guardrail systems with toe-boards, safety net system, or personal fall arrest system.
  
- Any cover used to cover a hole shall be marked with the words "hole" or "cover". The cover shall be secured. The cover shall be capable of supporting at least twice the weight of employees, equipment, and materials that may be imposed over the cover at any one time.
  
- Every employee in a hoist area shall be protected from falling 6' or more to a lower level by a guardrail system or personal fall arrest systems.
  
- Toe boards must be installed on guardrail systems when employees are exposed to falling objects from higher levels.
  
- Where physical barriers may interfere with lifelines, double lanyards will be used to ensure that the worker is continuously protected from falling.
  
- Each employee at the edge of a well, pit, shaft, and similar excavation 6 feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, covers or by using a personal fall arrest system.
  
- Each employee at the edge on an excavation 6 ft. or more in depth shall be protected by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barriers.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FALL PROTECTION**

- Employees working above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems, or personal fall arrest systems.

### **6.0 Training Requirements**

- The Company shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.
- The Company shall assure that each employee has been trained, as necessary, by a qualified competent person
- A written certification of training record shall be prepared following fall protection training exercises. Included shall be the name of the employee trained, the date(s) of the training, and the signature of the person who conducted the training.
- Retraining shall be conducted when the employer has reason to believe that any affected employee, who has already been trained, does not have the sufficient level of understanding or skill of the fall protection program and requirements.
- Retraining is also necessary when the following occur: a) changes in the workplace render previous training obsolete, b) changes in the types of fall protection systems or equipment renders previous training obsolete or c) inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the required understanding or skill.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FIRE EXTINGUISHERS/FIRE PROTECTION**

### **1.0 Purpose**

This procedure provides Global Water Resources requirements and responsibilities for effective fire response, prevention and protection in accordance with OSHA 29 CFR 1910.157.

### **2.0 Scope**

The Company designed this section for all its operating companies.

### **3.0 Responsibilities**

The primary responsibility for fire protection and prevention rests with the supervisor. The supervisor must ensure that fire extinguishers are available, hot-work permits are implemented where applicable, that employees are trained, and an alarm system for evacuation purposes are in place.

### **4.0 Acronyms And Definitions**

**Class A Fire** – A fire involving ordinary combustible materials such as paper, wood, cloth and some rubber and plastic materials.

**Class B Fire** – A fire involving flammable or combustible liquids, flammable gases, greases and similar materials and some rubber and plastic materials.

**Class C Fire** – A fire involving energized electrical equipment.

**Class D Fire** – A fire involving combustible metals such as magnesium and titanium.

### **5.0 Procedures**

#### **5.1 Fire Protection**

- Prohibit smoking in all Global Water Resources facilities and vehicles, except in designated areas.
- Conspicuously locate all fire extinguishers for accessibility, inspect fire extinguishers monthly, document inspections, maintain fire extinguishers at all times, replace fire extinguishers immediately when defective and after discharge and ensure they are approved for the location and hazards.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **FIRE EXTINGUISHERS/FIRE PROTECTION**

- Locate at least one fire extinguisher adjacent to each stairway on each floor.
- Establish a fire alarm system (telephone, siren or similar device) so that Global Water Resources employees and the local fire department can be alerted in case of fire. Conspicuously post the telephone number of the local fire department.
- Provide an ABC fire extinguisher within 50 feet wherever more than five (5) gallons of flammable or combustible liquids or five (5) pounds of flammable gas are being used.
- In office environments, travel distance to a fire extinguisher should not exceed 75 feet.
- Maintain portable fire extinguishers in fully charged and operable condition at all times. Have a qualified service certify portable fire extinguishers annually. Retain the record of the annual maintenance check date for one year.
- When a fire extinguisher is found not to be serviceable, remove it from service immediately and replace it with another fire extinguisher.
- Appoint a trained person to conduct all required inspections.
- Wall-mount fire extinguishers and place them at a minimum height of 36 inches but not higher than 60 inches above the floor.
- If the fire extinguisher is not readily visible, provide identification signage as per local fire code.
- Equip all Global Water Resources vehicles with an ABC fire extinguisher.
- Only trained employees will use portable fire extinguishers to fight incipient fires.

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## **FIRE EXTINGUISHERS/FIRE PROTECTION**

### **5.2 Fire Prevention**

- Post emergency telephone numbers near telephones, employee notice boards and other conspicuous places when telephones serve as a means of reporting emergencies.
- Prohibit smoking in all Global Water Resources facilities and vehicles, except in designated areas.
- Prohibit smoking in vicinity of potential fire hazards. Conspicuously post fire hazard areas “No Smoking or Open Flame”.
- Restore all detection systems to proper operating condition as soon as possible after each test or alarm.
- Protect fire detectors from corrosion as well as from mechanical or physical impacts which might make them inoperable.
- Fire detection systems installed to facilitate employee alarms and evacuations must provide a warning for emergency action and safe escape.
- The employee alarm system must provide a reaction time sufficient for the safe escape of employees from the workplace.
- Test non-supervised employee alarm systems for reliability every two months.
- Provide a backup means of alarm, such as employee runners or telephones, when systems are out of service.
- Test supervised alarm systems at least annually. Where applicable, backup batteries shall have a preventative maintenance program.
- Permit only trained personnel to conduct servicing, testing and maintenance of alarm systems.
- Fire alarm pull boxes used in conjunction with employee alarms must be unobstructed, conspicuous and readily accessible.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FIRE EXTINGUISHERS/FIRE PROTECTION**

### **5.3 Training Requirements**

- Global Water Resources shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting. All training must be documented.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FIRST AID & CPR REQUIREMENTS**

### **1.0 Purpose**

This procedure outlines the requirements for emergency first aid treatment of any injured employee in accordance with OSHA 29 CFR 1910.151.

### **2.0 Scope**

The Company designed this procedure for all its operating companies.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and in accordance with applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

### **4.0 First Aid/CPR**

#### **4.1 Training**

- Each operating location is to have one or more employee trained in first aid/CPR.
- Individuals will be trained within the required frequency of the sponsoring agency (e.g. Red Cross) established so that first aid/CPR certifications are current.
- In facilities equipped with Automatic External Defibrillator (AEDs), additional training and certification is required prior to use of these units. Only trained, certified employees may use AEDs.
- Employees trained in first aid/CPR will also receive training in **Blood borne Pathogens** and the use of universal precautions.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FIRST AID & CPR REQUIREMENTS**

### **4.2. First Aid Kits and Equipment**

- Each operating location will stock first aid kits based on the recommendations of a physician or licensed medical practitioner.
- AEDs will be appropriately and visibly mounted and maintained and inspected per the manufacturer's recommendations.
- Mount first aid kits in a standard location in all Global Water Resources trucks and automobiles. Clearly mark first aid kits or cabinets in Global Water Resources buildings where employees are assigned to work. In larger buildings, each department or work area is to have first aid kits or cabinets. Store contents of first aid kits or cabinets in containers designed to seal when closed, so dust proof and water (moisture) proof.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FLAMMABLES & COMBUSTIBLES**

### **1.0 Purpose**

This procedure outlines requirements and responsibilities for proper handling and storage of flammable and combustible liquids at Global Water Resources facilities and applicable jobsites.

### **2.0 Scope**

This procedure is developed in accordance with OSHA 29 CFR 1910 for the purpose of employee safety. The Company designed this section for all its operating companies.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and reporting any safety issues to their supervisor.

### **4.0 Definitions**

**Approved** – This means equipment that has been listed or approved by a nationally recognized testing laboratory such as Factory Mutual Engineering Corp., or Underwriters' Laboratories, Inc., or federal agencies such as the Bureau of Mines, or the U.S. Coast Guard, which issue approvals for such equipment.

**Bonding** – The interconnection of two objects with clamps and wire to equalize the electrical potential between the two and help prevent static sparks that could ignite flammable materials. Proper liquid dispensing and receiving requires dissipating the static charge by bonding between containers.

**Closed Container** – A container sealed by using a lid or other device that prevents liquid or vapor from escaping at ordinary temperatures.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **FLAMMABLES & COMBUSTIBLES**

**Class II or Above Combustible Liquids** – Any liquids having a flash point at or above 100 degrees F or 37.8 degrees C, and up to 200 degrees F or 93.4 degrees C. Combustible liquids can include: diesel fuel, fuel oils, kerosene or mineral spirits.

**Class II or Above Flammable Liquids** – Any liquid having a flash point below 73 degrees F or 22.8 degrees C. IAWC flammable liquids can include: gasoline, or isopropyl alcohol.

**Combustion** – Any chemical process that involves oxidation sufficient to produce light or heat.

**Flame Arrestor** – A mesh or perforated metal insert within a flammable storage can which protects its contents from external flame or ignition by absorbing and dissipating heat entering the can, keeping the vapor temperature below its ignition point.

**Flammable** – Capable of being easily ignited, burning intensely, or having a rapid rate of flame spread.

**Flash Back** – The phenomenon characterized by vapor ignition and flame travel back to the vapor source (the flammable liquid).

**Flash Point** – The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air.

**Fusible Link** – A metal piece that melts at a predetermined temperature which is used to hold spring-loaded covers of tanks and doors of storage cabinets. In case of fire, or any other source of extreme heat, the link melts and the cover or door closed to protect the contents.

**Grounding** – Provision of contact between container and "ground" - usually by wire - to prevent generation of static electric sparks.

**Liquefied Petroleum Gas (LPG)** – Material which is composed predominantly of any of the following hydrocarbons, or mixtures of them, such as propane, propylene, butane or (normal butane iso-butane), and butylene's.

**Portable Tank** – A closed container having a liquid capacity more than 60 U.S. gallons, and not intended for fixed installation.

**Safety Can** – An approved closed container of not more the 5 gallons capacity, which has a flash-arresting screen spring-closing lid and spout cover and is designed so that it will safety relieve internal pressure when subjected to fire exposure.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FLAMMABLES & COMBUSTIBLES**

**Type I Safety Can** - A safety can with a single spout.

**Type II Safety Can** - A safety can with two openings; one for pouring and one for filling.

### **5.0 Procedure**

#### **5.1 Gasoline - General**

- Gasoline engines must be shut down while the fuel tank is being refilled.
- Portable gasoline engines must not be used within fire walls, diked areas or other low lying areas where flammable gases could accumulate.
- When small quantities of gasoline or other flammable liquids are being transported, an approved safety container must be used and placed or attached to the conveyance so it cannot fall or spill. The container must be conspicuously marked as to its contents.

#### **5.2 Storage of Flammable or Combustible Liquids**

- No more than 25 gallons of flammable or combustible liquids will be stored in a room outside of an approved storage cabinet.
- No more than 60 gallons of a flammable or 120 gallons of a combustible liquid may be stored in one cabinet.
- No more than 3 cabinets may be located in one cabinet.

#### **5.3 Outside Containment**

Outside flammable storage areas will be graded in a manner to divert possible spills away from buildings or other structures, or will be surrounded by a curb or earth dike at least twelve inches high. When curbs or dikes are used, drainage must be allowed for ground or rain water, or spills of flammable or combustible materials.

# HEALTH & SAFETY PROCEDURES MANUAL

## FLAMMABLES & COMBUSTIBLES

### 5.4 Fire Control for Flammable or Combustible Liquid Storage

- At least one Type A B C portable fire extinguisher will be located outside of, but not more than ten (10) feet from, the door opening into any room used for storage of more than sixty (60) gallons of flammable or combustible liquids.
- 55 gallon containers used for dispensing flammable materials will be grounded/bonded to eliminate potential static electrical charges.

Maximum Storage Quantities for Cabinets	
Liquid Class	Maximum Storage Capacity
Flammable/Class I	80 gallons
Combustible/Class II	60 gallons
Combustible/Class III	120 gallons
Combination of Classes	120 gallons*
*Not more than 60 gallons may be Class I and Class II liquids.	
<b>Note:</b> Not more than three such cabinets may be co-located	

Guide to Maximum Storage Quantities for Containers					
Container Type	Flammable Liquids Class			Combustible Liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass or approved plastic	1pt	1qt	1gal	1gal	1gal
Metal (other than DOT drums)	1gal	5gal	5gal	5gal	5gal
Safety Cans	2gal	5gal	5gal	5gal	5gal
Metal drums (DOT specifications)	60gal	60gal	60gal	60gal	60gal
Approved portable tanks	660gal	660gal	660gal	660gal	660gal
<b>Note:</b> Container exemptions: (a) Medicines, beverages, foodstuffs, cosmetics, and other common consumer items when packaged according to commonly accepted practices, will be exempt from the requirements of 1910.106(d)(2) (i) and (ii)					

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

### **1.0 Purpose**

The program establishes procedures to be followed by employees when operating fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines, for the purposes of materials handling and storage. This program does not apply to vehicles intended primarily for earth moving.

### **2.0 Scope**

This procedure is developed in accordance with OSHA 29 CFR 1910.178 for the purpose of employee safety. This procedure applies to all Global Water Resources Operations.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that only certified employees operate fork lifts or other powered industrial trucks and that equipment is inspected and maintained according to manufacturer's specifications and applicable regulatory requirements.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and operating fork lifts and powered industrial trucks in a safe manner.

### **4.0 Equipment Guidelines**

- Prior to purchasing a powered industrial truck, give consideration to the locations and atmosphere the truck operates in, and purchase the appropriate designation (type) of industrial truck. Contact the Safety Department for assistance in determining the appropriate truck designation for your needs.
- Do not perform modifications and additions that affect capacity and safe operation of powered industrial trucks without the manufacturer's prior written approval.
- Equipment must be used, operated and maintained in accordance with the manufacturer's recommendations.

## **HEALTH & SAFETY PROCEDURES MANUAL** **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

- Where general lighting is less than 2 lumens per square foot in an area of an operation, provide auxiliary directional lighting on the truck.

### **5.0 Certified Operators**

No employee is permitted to operate a powered industrial truck unless the employee has been trained and certified by the company. Training and certification on one type of powered industrial truck qualifies the employee to operate that type only.

Following initial training and evaluation, certified operators will be re-evaluated at least once every three years to maintain certification for continued operation of powered industrial trucks. In addition, refresher training is required when:

- The operator is observed operating the vehicle in an unsafe manner;
- The operator is involved in an accident or near-miss incident;
- The operator received an evaluation revealing the operator is not operating the truck safely;
- The operator is assigned to operate a different type of truck;
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

### **6.0 Changing And Charging Batteries**

- Locate battery charging installations in areas designated for that purpose.
- Provide facilities for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.
- Provide a conveyor, overhead hoist, or equivalent material handling equipment for handling batteries.
- Properly position and secure reinstalled batteries in the truck.



## **HEALTH & SAFETY PROCEDURES MANUAL** **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

- Provide a carboy tilter or siphon for handling electrolyte.
- When charging batteries, pour acid into water, not water into acid.
- Properly position trucks and apply the brake before attempting to change or charge batteries.
- Take care to assure that vent caps are functioning. Open the battery (or compartment) cover(s) to dissipate heat.
- No smoking in the charging area.
- Take precautions to prevent open flames, sparks, or electric arcs in battery charging areas.
- Keep tools and other metallic objects away from the top of uncovered batteries.

### **7.0 Fuel Handling And Storage**

- Store and handle liquid fuels such as gasoline and diesel fuel in accordance with NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969).
- Handle and store liquefied petroleum gas fuel in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No 58-1969).

### **8.0 Truck Operations**

- Do not drive trucks up to anyone standing in front of a bench or other fixed object.
- Do not allow anyone to stand or pass under the elevated portion of any truck, whether loaded or empty.
- Do not permit unauthorized personnel to ride on powered industrial trucks.
- Keep arms and legs inside the running lines of the truck.
- Wear seatbelts if provided.

## **HEALTH & SAFETY PROCEDURES MANUAL** **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

- When a powered industrial truck is left unattended, fully lower load engaging means, neutralize controls, shut off power, and set the brakes. Block wheels if the truck is parked on an incline.

1. The truck is considered unattended when the operator is 25 feet or more away from the vehicle which remains in clear view, or whenever the vehicle is not in the operator's direct line of sight.

2. When the operator of an industrial truck is dismounted and within 25 feet of the truck still in clear view, the fully lower load engaging means, neutralize controls, and set the brakes to prevent movement.

- Do not use fork lifts to raise and/or lower personnel unless personnel are positioned within an approved man-cage and tied off with personal fall protection equipment.

### **9.0 Traveling**

- Observe all traffic regulations, including authorized plant speed limits. Maintain a safe distance (approximately three truck lengths from the truck ahead), and keep the truck s under control at all times.

- Do not pass other trucks traveling in the same direction at intersections, blind spots or other dangerous locations.

- Slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load obstructs forward view, travel in reverse.

- Cross railroad tracks diagonally wherever possible.

- Look in the direction of, and keep a clear view of, the path of travel. If a load blocks the forward view of the driver, drive the truck in reverse.

- Ascend or descend grades slowly. Drive grades in excess of 10 percent with the load upgrade, with the load tilted back and raised only as far as necessary to clear the road surface.

- Operate the truck at a speed permitting it to be brought to a stop in a safe manner.

- No stunt driving and horseplay.

## **HEALTH & SAFETY PROCEDURES MANUAL** **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

- Slow down for wet or slippery floors.
- Avoid running over loose objects on the roadway surface.
- While negotiating turns, reduce speed.

### **10.0 Loading**

- Use caution when handling off-center loads that cannot be centered.
- Check the load capacity plate on the truck for load capacity, and do not exceed the limits with any load.
- Adjust long or high (including multiple-tiered), loads that may affect capacity.
- Operate trucks equipped with attachments as partially loaded trucks when not handling a load.
- Place the load engaging means under the load as far as possible; carefully tilt back the mast to stabilize the load.
- Use extreme care when tilting the load forward or backward, particularly when the loaded material is stacked.

### **11.0 Inspection And Maintenance Guidelines**

- Industrial Trucks shall be inspected prior to being placed into service and shall not be placed in service if the inspection shows any condition that adversely affects the safety of the vehicle. If the industrial truck is used on a round-the-clock basis, it will be inspected after each shift. A daily inspection log must be completed and maintained by each facility. Immediately report defects when found and ensure they are corrected.
- If at any time a powered industrial truck is found to be defective and/or in need of repair, it will be taken out of service until it has been restored to a safe operating condition in accordance with the manufacturer's recommendations and applicable regulations.

## **HEALTH & SAFETY PROCEDURES MANUAL** **FORK LIFTS/POWERED INDUSTRIAL TRUCKS**

- Do not fill fuel tanks while the engine is running. Avoid spilling fuel. If spillage occurs, carefully clean up or evaporate fuel completely and replace the fuel tank cap before restarting the engine.
- Trucks will not be operated with leaks in the fuel system.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAND & POWER TOOLS**

### **1.0 Purpose**

The purpose of this standard operating procedure is to describe general rules and requirements for the safe use of hand tools, power tools and other shop machinery.

### **2.0 Scope**

This procedure is developed in accordance with OSHA 29 CFR 1910.242. The Company designed this section for all operating companies including those employees who may be required to use any hand and/or portable power tools.

### **3.0 Responsibility**

#### **3.1 Supervisors**

Responsible for the safe condition of tools and equipment used by employees. Supervisors must ensure that employees are trained and utilize tools in the safe and appropriate manner for the purposes intended.

#### **3.2 Employees**

Responsible for inspection and safe operation of tools and equipment.

### **4.0 General**

All tools must be used, operated and maintained in accordance with the manufacturer's recommendations.

### **5.0 Compressed Air**

- Do not use compressed air for cleaning purposes except where air pressure is reduced to less than 30 psi. If compressed air is used for cleaning, effective chip guarding and personal protective equipment must be utilized.
- Only compressed air will be used for cleaning purposes.
- Compressed air will never be used to clean debris from personnel.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAND & POWER TOOLS**

### **6.0 Guarding Of Portable Powered Tools**

Removing or altering the manufacturer's originally installed protective devices is prohibited.

### **7.0 Pneumatic Powered Tools and Hoses**

- Tool and hose retainers will be installed on each piece of equipment that, without such a retainer, may eject the tool.
- Hose and hose connections, used for conducting compressed air to utilization equipment, will be designed for the pressure and service to which they are subjected.
- Inspect all hoses before each use.

### **8.0 Portable Abrasive Wheels**

- General: Ensure a safety guard covers the spindle end, nut and flange projections. Mount the safety guard to maintain proper alignment with the wheel, and ensure the strength of the fastenings exceeds the strength of the guard.
- Cup Wheels: Special revolving cup guards that mount behind the wheel and turn with it can be used. They can be made of steel or other material with adequate strength; enclose the wheel sides upward from the back for one-third of the wheel thickness. Maintain clearance between the wheel side and the guard, that clearance not to exceed one-sixteenth inch.
- Vertical Portable Grinders: Ensure safety guards used on machines known as right angle head or vertical portable grinders have a maximum exposure angle of 180°, and locate the guard to be between the operator and the wheel during use. Ensure adjustment of the retainer guard deflects pieces of an accidentally broken wheel away from the operator.
- Other Portable Grinders: Do not exceed 180 ° as the maximum angular exposure of the grinding wheel periphery and sides for safety guards used on other portable grinding machines and encloses the top half of the wheel at all times.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAND & POWER TOOLS**

- Immediately before mounting, closely inspect all wheels and sounded by the user (ring test) to make sure they have not been damaged in transit, storage, or otherwise. Check the spindle speed of the machine before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
  
- Make sure grinding wheels fit freely on the spindle and remain free under all grinding conditions. Make the machine spindle to nominal size plus zero minus .002 inch, and make the wheel hole suitably oversize to assure safety clearance under conditions of operating heat and pressure
  
- Ensure all contact surfaces of wheels, blotters, and flanges are flat and free of foreign matter.
  
- When a bushing is used in the wheel hole, ensure it does not exceed the width of the wheel and does not contact the flanges.

### **9.0 Power Tools**

- Power tools must be double insulated (stamped or labeled) and be approved by an organization such as UL.
  
- All tools shall be inspected before each use.

### **10.0 Extension Cords and GFCI**

- Extension cords used with portable electric tools and appliances will be of the three-wire type and will be designed for hard or extra hard usage. Flexible cords used with temporary and portable lights will be designed for hard or extra-hard usage.

Note: The National Electrical Code, ANSI/NFPA 70, in Article 300, table 400-4, lists various types of flexible cords, some of which are noted as being designed for hard or extra-hard usage.

- Extension cords must have one of the following markings. Both the package and the cord itself will be stamped.

1. Hard service cords (Types S, ST,SO, STO)
2. Junior hard service cords (Types SJ, SJO, SJT, SJTO)

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HAND & POWER TOOLS**

- Extension cords must be inspected before every use. No damaged, spliced, or taped extension cords can be used.
- Ground-Fault Circuit Interrupters (GFCIs) are required in wet environments and when using portable generators. OSHA does not require the use of GFCIs on portable or vehicle-mounted generators of 5kW or less if the output is a two-wire, single-phase system and the circuit conductors are insulated from the generator frame and all other grounded surfaces.
- All GFCIs will be tested before each use. All circuit breakers on generators will be tested/ tripped before using with an extension cord.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARD COMMUNICATION, EMPLOYEE RIGHT-TO-KNOW**

### **1.0 Purpose**

This Hazard Communication Program applies to all Global Water Resources operating locations and addresses all chemicals known to be present in the workplace in such a manner that employee may be exposed under normal conditions of use or in a foreseeable emergency.

### **2.0 Scope**

This procedure is developed in accordance with OSHA 29 CFR 1910.1200 for the purpose of employee safety. It is the policy of Global Water Resources to communicate any relevant information regarding hazardous chemicals to potentially exposed employees, and to implement appropriate measures to safeguard employee safety and health. The goal of the program is to minimize the possibility of employee illness or injury arising from exposure to hazardous chemicals.

### **3.0 Responsibilities**

#### **3.1 Operational Management**

- Review this procedure annually to ensure the elements and procedures of the program are current and applicable.
- Ensure employees receive training.
- Verify that hazardous chemicals are reviewed and updated at least annually.

#### **4.2 Department Supervisors**

- If the department utilizes hazardous chemicals, a list of the hazardous chemicals known to be present will be maintained and reviewed annually.
- Inform employees of the hazards of non-routine tasks involving any hazardous substances.
- Ensure training of new employees prior to the employee working with hazardous substances.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HAZARD COMMUNICATION, EMPLOYEE RIGHT-TO-KNOW**

- Review the MSDS of any new chemical introduced into the work area with all department employees. Ensure the MSDS is filed in an MSDS binder.
  
- Ensure the MSDS filed in an MSDS binder is readily accessible to employees at all times and updated when new MSDSs are received or when an MSDS received has a more current preparation date than the one on file.

#### **4.0 Definition Of Terms**

To aid in the comprehension of the terminology used in a material safety data sheets and within this procedure, a [Glossary of Terms](#) has been provided.

#### **5.0 Procedure**

Information about hazardous chemicals in the workplace will be communicated to employees through this procedure, container labeling and other forms of warnings, material safety data sheets, and training.

#### **6.0 Employee Rights**

The Hazard Communication Standard gives certain rights to an employee regarding their “Right-To-Know” about the hazards of substances used in the workplace. A brief summary of those employee rights, pertaining to the acts follows. Global Water Resources fully intends to ensure these rights are upheld.

- The Company’s written Hazard Communication Program must be available, upon request, to employees, or their designated representatives. Global Water Resources written Hazard Communication Program is maintained in the Safety Manual at all manned operating locations and available to for review during working hours.
  
- Material Safety Data sheets (MSDS) must be maintained in the workplace for each hazardous chemical, readily available to employees during each work shift. Where employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location; the MSDS may be kept at the primary workplace facility.
  
- The Company maintains MSDSs in a binder located at all manned operating locations, available to employees during their work shift.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HAZARD COMMUNICATION, EMPLOYEE RIGHT-TO-KNOW**

- A copy of Material Safety Data Sheets must be made available to employees in a timely manner of a written request. If the company does not make a good faith effort to supply the MSDS, the employee may refuse to work with the substance.
  
- Employees will be provided with effective information and training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new physical or health hazard the employees have not previously been trained on is introduced into their work area.

#### **7.0 Purchase Of New Chemicals**

If the chemical is new to a work area, the employee making the requisition will contact the supplier and request that a Material Safety Data Sheet be faxed prior to shipment of the chemical. The appropriate departmental supervisor will be notified upon ordering of new chemicals. When received, the MSDS should be forwarded to all applicable facilities. Each facility will update the MSDS inventory list and binder.

#### **8.0 Labeling**

- Each department supervisor will ensure that all containers of hazardous chemicals are properly labeled, either with a Manufacturer's label or an equivalent label, which contains the following information:
  1. Identification of the material in the container
  
  2. Appropriate hazard warning
  
  3. Name and address of the chemical manufacturer or supplier (if in original container)
  
- The identification of the material must be the same name found on the MSDS and inventory of hazardous chemicals. Hazard warnings include both health and physical hazards.
  
- Definitions of these hazard warnings and other terms, which may be found on a label or in an MSDS, are listed in the [Glossary of Terms](#).

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HAZARD COMMUNICATION, EMPLOYEE RIGHT-TO-NOW**

- Efforts should be made to keep all chemicals in the original manufacturer's labeled container. In the event that the chemical must be introduced into a different container for use, an appropriate hazard label (utilizing the HMIS or NFPA method of labeling) must be affixed to the container. Information concerning chemical name and hazards warnings will be taken from the MSDS.
- Containers exempted from hazard labeling requirements include pipes and containers into which an associate transfers hazardous chemicals for that associate's use during the work shift and articles as defined in the [Glossary of Terms](#). Labels for in-plant stationary containers, such as tanks and bins, are in the form of signs posted on or near the container.

### **9.0 Employee Training**

- Any Employee who works with or is potentially exposed to hazardous chemicals will receive training on the Hazard Communication Standard, the facility Hazard Communication Program and the safe use of those hazardous chemicals.
- A [Training Guide](#) is included for supervisor's use and can be enhanced with audiovisual materials.
- The Operational Management Department and/or department supervisors will ensure that all new employees are trained before exposed to any hazardous chemical. This training must be documented.
- Retraining will occur as new hazards are recognized in the workplace, or when employees may become exposed to new hazards as a result of transfer, process changes, or new chemical introductions.
- The training program covers the following topics:
  1. An overview of the requirements contained in OSHA's Hazard Communication Standard.
  2. Container labels, signs, and warnings.
  3. How to read and understand Material Safety Data Sheets
  4. HMIS and NFPA labeling systems

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD COMMUNICATION, EMPLOYEE RIGHT-TO-KNOW**

5. Information on location of hazardous chemicals in the work area.
6. Location and availability of the written hazard communication program.
7. Company specific programs.
8. Safety rules
9. Review of specific Material Safety Data Sheets and appropriate hazards.

### **10.0 Non-Routine Tasks**

- The Department Supervisor, with assistance from the Operational Management Department, ensures employees are informed of the hazards of non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.).
- Employees will be informed of the hazardous chemicals that may be present, personal protective equipment required, and work procedures to be followed.

### **11.0 Outside Contractors**

- The Manager or Supervisor hiring an outside contractor will have the responsibility of informing that contractor of the chemical hazards to which the contractor's associates may be exposed during the period they work in our facility. Material Safety Data Sheets will also be made available to the contractor.
- The contractor has the responsibility of informing Global Water Resources of any hazardous chemicals brought on site and supplying a MSDS for each such chemical.
- Contractors and their employees must abide by all safety rules and personal protective programs, review the MSDSs of all hazardous chemicals located in the work area, and follow the requirements of the company Hazard Communication Program.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

### **1.0 Purpose**

This written plan addresses any security threats that may be associated with the materials we handle. This plan is written to comply with the federal regulation that requires this Hazardous Materials Security Plan (49 CFR, Parts 172.800 and 172.804).

### **2.0 Scope**

This procedure applies to all Global Water Resources operations that transport chemicals and hazardous materials in quantities requiring placing placards on vehicles per OSHA 49 CFR 172, Subpart F.

### **3.0 Responsibilities**

#### **3.1 Operational Management**

- Review this procedure annually to ensure the elements and procedures of the program are current and applicable.
- Ensure employees receive training.
- Verify that hazardous chemicals are reviewed and updated at least annually.

#### **3.2 Department Supervisors**

This plan has been prepared for the Global Water Resources Facility Supervisor, who is responsible for reviewing this policy on an annual basis and recommending and implementing changes as needed. The plan will change if the company begins handling different classes of hazardous wastes or if any conditions at any of our facilities change in a way that would require additions or amendments.

#### **3.3 Employees**

Employees need to be constantly mindful of emergency evacuation procedures, emergency procedures and reporting procedures at these facilities. They should also be aware (and cautious) of any suspicious behavior, near misses, or incidence that could be linked to security or safety problems in the plants where they are working. Any suspicious behavior, safety hazards, security breaches, or similar incidents are to be reported to a supervisor and appropriate plant personnel immediately.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

### **4.0 HazMat Security Regulations**

Recent changes to the Federal Register will also impact Global Water Resources security measures. It is policy at Global Water Resources to comply with all State and Federal regulations pertaining to HazMat security and safety. These regulations noted in this section are all changes made effective within the last year (2005).

#### **4.1 Background Checks For HazMat Drivers**

The Department of Justice will do background checks on drivers who have HazMat endorsements. If the agency determines that the driver could be a security risk, they may withdraw his hazardous materials endorsement— thereby precluding him/her from hauling hazardous materials. The Company will continue to perform background checks on potential HazMat drivers. Additional information on this program is available in the Federal Register (see the Federal Register, May 5, 2003, for details).

#### **4.2 Locks On All Straight Vans And Cargo Vans**

A driver transporting hazardous material shall verify that all locks are in place if the vehicle has been left unattended for any length of time. Each driver shall make a notation in his or her log book of the time and date that the verification occurred.

#### **4.3 Vehicle Code Requirement For Two-Way Communication**

Ensure a vehicle or combination of vehicles required to display placards is equipped with a two-way communication device, maintained in good working order that enables the driver to contact the personnel responsible for the safety operations of the motor carrier in the event of an emergency.

For the purposes of this section, “two-way communication device” means a radio, cellular telephone, or other similar device permitting communication between the driver and personnel responsible for the safety operations of the motor carrier.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

### **5.0 Personnel Security Measures**

#### **5.1 Hiring Procedures**

The Global Water Resources background check on potential drivers is performed by Global Water Human Resources Manager. The Global Water Resources procedure requires the following:

- Applicants for employment will be carefully screened, following all of the steps in our hiring process. Driver applicants who are required to hold a Commercial Driver License (CDL) with a Hazardous Material endorsement will be required to submit to a criminal background check.
- Certain criminal convictions can disqualify the applicant from holding a position that requires a CDL with a HazMat endorsement. As mentioned previously in this plan, the Department of Justice may pull the HazMat endorsement from people with criminal convictions.
- Unexplained gaps in employment history, an incomplete application, false statements or false documents will disqualify applicants from employment. Prospective employees must also answer a question about criminal record and previous drug and alcohol test results on the Global Water Resources application.
- Global Water Resources recommends at least 2 years of HazMat driving experience. Some drivers may be hired with less experience if they have high quality references and a good work record.
- Human Resources will check both professional and personal references. They will check any previous names used by the applicant. Global Water Resources will verify citizenship on the I-9 form. They will verify his/her residence information. They will also perform a criminal history check. Human Resources will send a written inquiry to previous employers inquiring about employment history and drug/alcohol test results. The results of these inquiries shall be considered prior to hiring a new driver. All responses from previous employers shall become part of the Global Water Resources driver's qualification file.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

- Operational Management (OM) will review the application and the driver's DMV record of violations. OM will have the prospective employee perform a simple written exercise to determine if the driver can read English and complete simple paperwork.

### **5.2 Training**

Hazardous materials employees are currently trained to the standards required in 49 CFR Part 172.704. Effective immediately, those employees will also receive training on the applicable parts of this plan.

All employees who have access to Global Water Resources facilities will be trained on the applicable portions of this plan. All new field employees are given orientation training. All HazMat employees are given security plan training within 90 days of employment with Global Water Resources. The security plan training component of the training will be documented with a quiz.

The job duties of all new employees will be assessed to determine the level of access they should have to hazardous materials and to the hazardous materials written plan. This assessment will be used to determine assignment of certain keys and other access codes.

### **5.3 Enforcement**

All employees are expected to comply with the requirements of this plan and all other company safety rules. Failure to comply may result in disciplinary action up to and including termination of employment. If an employee should witness suspicious behavior or any violation of the rules in this plan by another employee or any visitor to our facilities, he/she is required to report the incident to their supervisor immediately; they are also authorized and encouraged to do so. Any emergency situation should be reported to enforcement authorities immediately by dialing 9-1-1 or the emergency phone number at the customer's facility.

## **6.0 Facility Security**

### **6.1 Security Organization**

Security is the responsibility of every employee of the company. Each employee has a responsibility to remain knowledgeable and to comply with company safety rules. All employees are responsible for reporting observations of breaches in security, or other safety hazards to their supervisors. All employees are encouraged to participate in the security process and to make suggestions on how to improve safety and security.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

### **6.2 Unauthorized Access**

- All company facilities will be posted with signs prohibiting trespassing by unauthorized persons.

- ***All persons and vehicles attempting to enter GLOBAL WATER RESOURCES property may be subject to search. Truck drivers making deliveries may be asked to present proper credentials before entering the property.***

- All company facilities are fenced and gated, and will be locked before and after business hours Monday through Friday. During business hours, visitors (“visitors” includes customers, truck drivers from other companies, vendors, agency personnel, and any other party having legitimate business to conduct) will be directed to report immediately to the Global Water Resources District Operations office.

- Weekend access will be restricted to employees with authorized codes.

- Employees of Global Water Resources will be expected to observe the entry area and challenge any visitor who does not report immediately to the office.

- No visitor access will be allowed during non-business hours, unless arranged in advance with the site manager or site dispatcher.

- All employees are authorized and expected to challenge and question any visitor who is not accompanied by an Global Water Resources employee.

### **6.3 Entry to GLOBAL WATER RESOURCES Building(s)**

As noted previously, all visitors will report to the Global Water Resources District Operations Office. They will identify themselves and the nature of their business. The staff will contact the appropriate personnel to escort the visitor through the office or facility. Unidentified visitors will be challenged and may be asked to leave the property immediately.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HAZARDOUS MATERIALS SECURITY PLAN**

### **7.0 En-Route Security**

- Pre-loaded trucks will be parked in (designated area) locked or otherwise secured.
- Drivers will perform a thorough pre-trip safety inspection prior to leaving the loading site with hazardous materials on board. The inspection will include a check of all safety-related items. In addition, cargo will be inspected for proper stowage. An important part of the pre-trip inspection will be a survey of the surrounding area to determine if any unknown (suspicious) persons are in the vicinity. If the driver identifies someone nearby who is an unauthorized visitor, he/she will notify a supervisor prior to leaving the loading location.
- Drivers will assure themselves that communication devices (cell phones, radios, satellite communication devices) are in good working order. Drivers who rely on cell phones for communication will carry a spare battery or an on-board battery charger.
- Drivers will not discuss details of the load or the trip with strangers, nor in telephone conversation if strangers are within hearing distance.
- Drivers will not carry hitchhikers or any other unauthorized passengers, nor stop to assist disabled motorists. If someone needs assistance, notify local authorities.
- The cab of the truck will always be locked while the vehicle is in operation, and when the driver leaves the vehicle for any reason. When the driver leaves the vehicle, he/she will keep the keys and will close all windows.
- Drivers will perform a walk-around inspection of the vehicle at every stop, assuring that the vehicle and load have not been tampered with during the stop.
- If the driver becomes lost or unsure of the route, he/she will stop at a public, well lighted location to seek assistance.
- Drivers will follow the company's scheduled call-in times en route, either by phone, radio or satellite communication.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARDOUS MATERIALS SECURITY PLAN**

- If there is a mechanical failure of the vehicle, the driver will attempt to reach a safe, well-lighted location to arrange for repairs. If the vehicle cannot be moved to a safe place, the driver will immediately attempt to reach a company representative by cell phone or radio for instructions. While waiting, the driver will remain in the cab with doors locked.
- Drivers will not accept any freight from any party en route without authorization from Dispatch. If any person tries to tender freight to the driver, and is not known to the company, the freight tender will be denied and the dispatcher or the driver will notify local law enforcement authorities.
- Drivers will discourage strangers from “lingering” near company equipment while the driver is loading or unloading. If the person refuses to leave, notify local law enforcement authorities.
- The driver will not release hazardous materials shipments at any unauthorized location nor to any unauthorized person.
- Upon delivery, drivers will carefully count or measure the quantity of hazardous material being delivered to assure that the number matches the quantity that was loaded.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEALTH AND SAFETY AUDITS**

### **1.0 Purpose**

To establish a health and safety audit process to ensure regulatory compliance, safe work conditions, and measurement of current safety and health programs in the work place.

### **2.0 Scope**

The Company has established guidelines for conducting health and safety audits for all operating companies.

### **3.0 Responsibilities**

#### **3.1 Management/Supervisors**

- Management/supervisors are responsible for participating in scheduled audits, addressing recommended corrective actions and conducting self-audits of their facilities on a regular basis.
- Management/Supervisors are responsible to comply with and ensure that this procedure is followed.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

#### **3.3 Operational Management**

Operational Management is responsible for designing the components of the health and safety audit, establishing the audit schedules, reviewing the audit results and tracking the status of corrective actions.

### **4.0 Audit Schedule**

The Business Units Operational Management Department will establish an audit schedule to ensure that established safe work practices are followed and unsafe conditions or procedures are identified and corrected. Frequency of inspections will be determined by the type, expectation and magnitude of hazards involved, proficiency of employees, equipment or process change, and injury/illness rates.

Schedules will be developed for three types of health and safety audits:

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEALTH AND SAFETY AUDITS**

- Audits performed by Business Units Operational Management staff
- Self audits performed by local management or health and safety committees
- Cross regional audits conducted by Operational Management personnel from other Business Units.

### **5.0 Documentation**

- Document unsafe conditions, work practices, and provide recommended corrections. Each operating location may develop an audit form or use the attached [Workplace Inspection Check List](#) for facility audits. Cross Regional audits will employ the auditing tool developed for that purpose.
- Maintain these records for at least three (3) years.
- Each operating location may use the Workplace Inspection Check List as a guide in their inspection efforts. It is by no means all-inclusive. Items may be added or removed based on the operation being audited and as hazards are identified and evaluated in the course of the workday.

### **6.0 Hazard Remediation**

- The documented audit report will be distributed to the appropriate management personnel of the operating unit where the audit was conducted. It will be the responsibility of the management personnel of the operating unit to provide a documented remediation plan and timeline for correction.
- Operational Management will track the corrective actions to ensure they are corrected according to the agreed to timeframes.
- Methods of remediation can include the following:
  1. Eliminating hazards from machines, processes, materials, or worksite structures.
  2. Abating hazards by controlling exposures to it or guarding against it at its source.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HEALTH AND SAFETY AUDITS**

3. Training personnel to be aware of hazards and to follow safe working practices and procedures to avoid them.
  4. Prescribing signs and personal protective equipment for warning and shielding employees against hazards.
- Imminent danger hazards shall be corrected immediately.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEALTH & SAFETY COMMITTEE (HSC)**

### **1.0 Purpose**

Health and Safety Committees (HSC) support the Company's Health and Safety Program. The Purpose of this procedure is to provide guidance to HSC in order to enhance the company's safety program and to promote safety in the best interest of the company and the welfare of the employees.

### **2.0 Scope**

This procedure applies to all Global Water Resources Operations.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to support HSCs and to actively participate and respond to HSC activities.

#### **3.2 Employees**

Employees who are member of the HSC are responsibility for compliance with this procedure.

### **4.0 Organization**

- The HSC is comprised of supervisory and non-supervisory employees, appointed by management and/or the union.
- Initial appointments to the HSC will be made in such a manner that a rotating basis for supervisory and non-supervisory personnel will be established. It is the option of management / union to have anyone named to the HSC.
- The members of the HSC elect their own Chairperson and Secretary.

### **5.0 Functions Of The HSC**

- Hold regular meetings of the HSC at a time and place prescribed by the Chairperson. Business Units will determine the required frequency of meetings within their organization.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEALTH & SAFETY COMMITTEE (HSC)**

- The HSC may conduct inspections at a time and in a manner they consider in the best interest of the health and safety program.
- The HSC maintains an orderly system of receiving and issuing “Safety Recommendations,” inspection reports, minutes of their meetings and distribution copies to appropriate management.
- The HSC is responsible for the following:
  1. To review and discuss accident reports.
  2. To promote compliance with health & safety policies and procedures.
  3. To identify health & safety issues and bring them to management attention.

### **6.0 Safety Recommendations**

The HSC issues safety recommendations as a result of either the HSC’s own observations and inspections, or as a result of safety suggestions submitted by employees.

- Management reviews the “Safety Recommendations” and either authorizes the work to be done and assigns it, rejects, or defers the recommendation with an explanation.
- The HSC forwards unresolved issues to the Manager, Operational Management.
- The HSC is responsible for tracking the status and resolution of recommendations.
- It is understood that Global Water Resources may issue and execute safety recommendations of their own by either the above method or in such manner as it desires.
- All meetings should be held during normal working hours.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEARING CONSERVATION PROGRAM**

### **1.0 Purpose**

This section covers procedures designed to protect employees from exposures to noise levels at or above 85 decibels, measured on the “A” scale (dBA), as an 8-hour time weighted average (TWA). This policy sets forth procedures on noise level monitoring, personal protective equipment, engineering controls, and work practices that protect employees from noise levels that result in occupational hearing loss.

### **2.0 Scope**

The Company designed this section for all operating companies. This procedure is developed in accordance with OSHA 29 CFR 1910.95 for the purpose of employee safety.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

**Supervisors are responsible to:**

- Notify the Manager of Operational Management when noise levels are at or above 8-hour TWA of 85 dBA.
- Provide employees with the appropriate hearing protection and training in its use and care.
- Notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.
- Provide affected employees or their representatives with an opportunity to observe any noise measurements.

#### **3.2 Employees**

Employees are responsible for:

- The proper use and care of hearing protection provide to them by the Company.
- Using hearing protection and following hearing conservation work practices as defined for their operations.
- Complying with this procedure as instructed.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEARING CONSERVATION PROGRAM**

### **3.3 Operations Risk Management**

Operational Management Managers are responsible to:

- Establish and maintain an audiometric testing program for all employees whose exposures equal or exceed an 8-hour TWA of 85 decibels.
- Coordinate with, and support, management/supervisors' efforts to reduce noise exposures in the workplace.
- Record the hearing loss case on the appropriate OSHA 300 log when an employee experiences a standard threshold shift (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.
- Conduct or arrange for workplace noise exposure monitoring and assessments when required.

### **4.0 General Requirements**

- A continuing hearing conservation program is required whenever noise exposures equal or exceed an 8-hour TWA of 85 dBA (or greater). The hearing conservation program includes monitoring, audiometric testing, employee notification, personal protection, training, and an expert evaluation of the test results.
- Noise levels of 85 dBA or more require audiometric testing conducted by an expert (licensed audiologist, otolaryngologist, qualified physician, or trained technician. Annual audiograms are compared with the baseline audiogram to determine if any deterioration of the worker's hearing has occurred. If a worker suffers a standard threshold shift; the employer must fit workers with hearing protectors train them in their use, and make sure they are used.
- Hearing protectors are mandatory when:
  1. An employee is exposed to TWA of 85 dBA or more.
  2. Baseline audiograms are delayed and exposure is at a TWA of 85 dBA or more.
  3. An employee experiences a hearing threshold shift.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEARING CONSERVATION PROGRAM**

### **5.0 Monitoring**

- Conduct noise level surveys in all areas that may exceed 85 dBA. This accurately identifies work areas in which exposures to noise at or above 85 decibels, A scale (dBA) could occur.
- Repeat noise level surveys whenever a change in production, process, equipment, or controls increases noise to an extent that may expose employees to unacceptable noise levels. All continuous intermittent and impulsive sound levels from 80 to 130 dBA must be integrated into the noise measurements.
- Calibrate the sound meter according to manufacturer's instructions.
- Inform employees of the noise level survey results.
- Monitor employees exposed to noise at a time-weighted average (TWA) at or above 85 decibels with a personal noise dosimeter for a period of 8 hours.

<b>Permissible Noise Exposures</b>	
<b>Duration Per Day, Hours:</b>	<b>Sound Level/dBA Slow Response</b>
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

### **6.0 Control Measures**

• **Engineering Controls** are procedures, other than administrative or personal protection, which reduces the sound level at the source or in the hearing zone of employees. Engineering controls are the preferred method of noise reduction. The following are examples of applicable engineering controls:

1. Maintenance of machines and tools in good working order.
2. Substitution of machines to reduce noise levels.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEARING CONSERVATION PROGRAM**

3. Substitution of processes.
4. Reducing the driving force of vibrating surfaces.
5. Reducing the response of vibrating surfaces.
6. Reducing the sound radiation from vibrating surfaces.
7. Reducing sound transmission through solids.
8. Reducing sound produced by gas flow.
9. Reducing noise by reducing its transmission through air.
10. Isolating employee or equipment in a sound-proof booth.

• **Administrative Controls** is reduce the exposure of noise without modifying the noise. The following are examples of applicable administrative controls:

1. Changing production schedules
2. Rotating jobs so exposure times are less.
3. Transferring job locations.
4. Scheduling machine operating times so as to reduce the numbers of employees present.
5. Implementation of purchasing procedures that specify maximum noise exposure levels for equipment.

• **Personal Protective Equipment** is a personal hearing protection device, or hearing protector, designed to reduce the level of sound reaching the eardrum. Common types of hearing protectors are earmuffs, earplugs, and ear canal caps (or semi-inserts).

### **7.0 Training**

• Supervisors provide or coordinate specific training before an employee begins any work involving noise exposure equal to or greater than an 8-hour time weighted average (TWA) of 85 decibels.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEARING CONSERVATION PROGRAM**

- Supervisors will repeat the training annually and include:
  1. Effects of noise.
  2. Purpose, advantages, and disadvantages of various types of hearing protectors.
  3. Selection, fit, and care of protectors.
  4. Purpose of audiometric testing.
  5. Procedures of audiometric testing.

### **8.0 Audiograms**

- The baseline audiogram is the reference audiogram against which future audiograms are compared. Baseline audiograms should be provided within six months of an employee's first exposure at or above 8-hour TWA of 85 dBA.
- Baseline audiogram:
  1. Conducted by recognized medical facility or individual with demonstrated competency in establishing baseline audiograms.
  2. Employees should not be exposed to workplace noise for 14 hours preceding the baseline test unless appropriate hearing protectors are worn during this time period.
- Audiograms must be repeated annually for affected employees.

### **9.0 Audiogram Evaluation**

Annual audiograms must be compared routinely to baseline audiograms to determine whether the audiogram is accurate and to determine whether the employee has lost hearing

- Notify employees with a standard threshold shift writing within 21 days.
- Provide employees with hearing protectors (if not already wearing), trained in care and use, and required to wear them.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HEARING CONSERVATION PROGRAM**

- Refit and retrain employees if already using protectors.
- Refer employees for further testing.
- Inform employees that they should see a physician if a suspected hearing medical problem not related to wearing hearing protection exists.
- Inform employees of retest results.

### **10.0 Recordkeeping**

- Global Water Resources will maintain records of all exposure measurements, and for each worker subject to medical surveillance. Audiometric tests records include:

1. Employee name.
2. Employee job title.
3. Date test performed.
4. Examiner's name.
5. Date of acoustic or exhaustive calibration.
6. Measurements of the background sound pressure levels in audiometric test rooms.
7. Employee's most recent noise exposure measurement.

- Audiometric test results will be maintained for 30 years and kept in the employee's file.

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# HEALTH & SAFETY PROCEDURES MANUAL

## HEAT STRESS

### 1.0 Purpose

The Company has developed this policy to assist in the prevention of heat stress related injuries or illnesses.

### 2.0 Scope

This procedure applies to all Global Water Resources operations and facilities where heat stress may affect the health and safety of employees.

### 3.0 Responsibilities

#### 3.1 Supervisors and management will be responsible for:

- Assessing work conducted in hot environments and to assure that an adequate work plan has been established to prevent the effects of heat stress.
- Providing employees with necessary protective equipment to minimize the effects of heat stress and to assure that operations are conducted in a safe manner.

#### 3.2 Employees will be required to:

- Utilize appropriate equipment as directed, to follow the outlined work plan and to report any issues or heat stress related injuries immediately.

### 4.0 Definitions

**Heat Rash** – Heat rash occurs from prolonged exposure to hot or humid air. The rash may be small red bumps, especially under tight clothing.

**Heat Cramps** – Heat cramps are muscle spasms and pain in the feet, abdomen, and hands. They are caused when sweating is heavy and fluids are not replaced.

**Heat Exhaustion** – Heat exhaustion has symptoms such as dizziness; nausea; fainting; heavy sweating; and moist, cool, pale skin. Poor blood circulation results from dehydration.

**Heat Stroke** – Heat stroke has symptoms such as no or reduced sweat; hot, red, usually dry skin; dizziness and confusion; nausea; strong, rapid pulse; and coma. This is heat stress in its most extreme and serious form. Heat stroke indicates that the body's temperature regulation mechanism has failed and that the victim's temperature is rising to critically high levels.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HEAT STRESS**

### **5.0 Requirements**

Exposure to temperature extremes places stress on the human body and the physiological strain that results from exposure often combines with work strain and fatigue to produce observable symptoms of heat stress.

To prevent heat related injuries, Global Water Resources will perform some or all of the following:

- Allow employees to become acclimatized to the work environment. Workers may take 5 days to become acclimated to the heat.
  
- Rearrange site work schedules and activities, working during cooler hours or at night, and adjusting work/rest periods. When possible, strenuous physical activities will be scheduled at the beginning and end of the day when external temperatures may be cooler.
  
- Provide employees with shaded rest areas or air-conditioned shelters.
  
- Use cooling devices to aid the natural body ventilation. Long cotton coveralls are suggested to absorb perspiration and to limit any contact with heat absorbing protective clothing.
  
- Use fans to provide local ventilation; however, if air temperatures exceed 95°F, the use of fans will be discontinued as convective heating and overheating could occur.
  
- Use ice vests, cooling collars or equivalent PPE to reduce body core temperature.
  
- Provide potable water sprayers so that employees can cool down skin surfaces when possible.

### **5.1 Water**

Maintaining normal body fluid levels with regular fluid intake is one of the most important factors in heat stress prevention and for adequate cardiovascular function. To maintain normal body fluid levels and body weight, an employee's fluid consumption should equal perspiration loss. Since the body's normal thirst response is an inadequate indicator of fluid loss, Global Water Resources will institute a regularly scheduled fluid intake program to help maintain employees' body fluid levels. The program may include:

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **HEAT STRESS**

- Making drinking water readily available and keeping drinking water cool (50° to 60°F).
- Encouraging employees to drink at least 16 ounces of water before work starts,
- Encouraging employees to drink one to two cups of water every 15 minutes and/or during breaks, and;
- Encouraging employees to drink more fluids if they are perspiring heavily.

#### **6.0 Training**

The Company will train employees to recognize the effects of heat stress, protective practices and the provisions of this procedure.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **JOB SAFETY ANALYSIS RISK ASSESSMENTS**

### **1.0 Purpose**

Job Safety Analysis/Risk Assessments (JSA/RA) are a tool that identifies hazards and eliminates or minimizes them before a work task. JSAs are also an instructional tool for employee training and work task familiarization.

### **2.0 Scope**

This procedure applies to all Global Water Resources operations.

### **3.0 Job Safety Analysis**

- Each Business Unit is required to identify where hazards and risks are apparent and prepare and implement job safety analyses that identify potential hazards and corrective actions or equipment that minimizes these hazards.
- A [JSA](#)/RA form may be used for the following:
  1. A new employee training guide,
  2. A refresher for jobs which run infrequently or outside the scope of normal operations,
  3. An investigation tool, and
  4. Informing employees of specific job hazards and protective measures.
- Completing a JSA/RA Three Step Procedure:
  1. Each job is broken down into a sequence of steps. Each step describes the actions of the job as that job is performed.
  2. Each step is examined to find and identify hazards; i.e., actions, conditions, possibilities that could lead to an accident.
  3. Recommended actions or procedures are determined for each hazard. The JSA becomes a guideline for what actions are necessary to eliminate or minimize the hazards that could lead to an accident or injury.

- Recordkeeping

Keep copies of JSA/RAs within the appropriate department for ready reference.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **LADDERS**

### **1.0 Purpose**

These procedures will cover safe work practices and inspections associated with ladder usage.

### **2.0 Scope**

The Company has developed guidelines for the safe use of ladders for all operations. This procedure is developed in accordance with OSHA 29 CFR 1910.25 and 29 CFR 1910.26 for the purpose of employee safety.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all employees use ladders in a safe manner in accordance with this procedure; follow manufacturer's recommendations; and provide ladders that are in good working order and compliant with requirements.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and use of ladders in a safe manner in accordance with this policy and manufacturer's recommendations.

### **4.0 Procedures**

- Inspect all ladders for defects before use.
- Never use a defective ladder. When found, either tag or mark a defective ladder so that it will not be used and so that it can be identified as either scrap or defective and in need of repair. Ladders tagged as defective should be stored in a separate area to prevent inadvertent use.
- Ensure that ladders are free of oil, grease and other potential slipping hazards before use.
- All straight and extension ladders must be equipped with slip-resistant feet and these feet must be in good working condition before the ladder is used.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **LADDERS**

- Only transparent coatings may be used on wooden ladders so that defects can be seen.
- Extension ladders longer than 20 feet shall not be used.
- The spacing of rungs/steps shall not exceed 12 inches.
- The use of job made ladders is prohibited.
- Type 1 ladders are recommended.
- 3-point contact with the ladder must be maintained at all times (two feet and one hand or one hand and two feet in contact with the ladder at all times). Therefore, tools or materials must not be carried up the ladder but rather hoisted separately.
- If work is conducted using a ladder as the work platform, then appropriate fall protection must be used.

### **5.0 Safe Use Of Ladders**

- Use both hands and face the ladder whenever ascending or descending.
- Use a rope or tool belt to carry or move tools and equipment so that proper hand contact with the ladder can be maintained.
- The horizontal distance for the base of a straight or extension ladder should extend 1 foot for every 4 feet of vertical distance. This safeguard will prevent the ladder from accidentally sliding away from the structure the ladder is leaning on for support.
- Always extend a ladder a minimum of 36 inches above the level to be reached and secured in place.
- Be sure that the stepladder is fully open and the metal spreader is locked into place before use.
- Always provide solid footing on both sides of a ladder when on soft ground to prevent sinking.

# HEALTH & SAFETY PROCEDURES MANUAL

## LADDERS

### 6.0 Unsafe Use Of Ladders

- Never use metal ladders near or around energized electrical circuits or equipment.
- Never splice or lash short ladders together.
- Never use a ladder in front of a door that opens toward the ladder unless the door is locked, blocked or guarded.
- Never use stepladders as straight ladders.
- Never use ladders on slippery surfaces unless they have been secured.
- Never climb higher than the third rung from the top on straight or extension ladders or the second step from the top on a stepladder.
- Never allow more than one person at a time on a ladder unless it is designed for use by more than one person.
- Never attempt to adjust or move a ladder while positioned on it.
- Never use ladders in a horizontal position as runways or scaffolds.
- Never place ladders on boxes, barrels, or other unstable bases to obtain additional height.
- Never use tops of ordinary type stepladders as steps.
- Never use a ladder as a brace, skid, guy or gin pole, gangway, or for other uses than it was designed.
- Never slide down a ladder
- Never modify or repair a ladder

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# HEALTH & SAFETY PROCEDURES MANUAL

## LEAD

### 1.0 Purpose

The Company has established criteria and guidelines to protect employees who may be exposed to lead during maintenance or construction operations and to comply with the requirements of OSHA 29 CFR 1910.1025 and OSHA CFR 1926.62, Lead Standard.

### 2.0 Scope

This procedure applies to all Global Water Resources operations.

### 3.0 Responsibilities

#### 3.1 Supervisors

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, that appropriate equipment is available and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### 3.2 Employees

Employees are responsible for complying with this procedure.

### 4.0 Definitions

**Action Level** – Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30  $\mu\text{g}/\text{m}^3$ ) calculated as an 8-hour time-weighted average (TWA).

**Competent Person** – One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who is authorized to take prompt corrective measures to eliminate them.

**Lead** – Metallic lead, all inorganic lead compounds, and organic lead soaps.

**Medical Removal** – Employees may be removed from work involving lead exposure if he/she is exposed to lead above the action level on each occasion that a periodic and follow-up blood sampling test indicated blood lead levels are at or above 50  $\mu\text{g}/\text{dl}$ .

**Permissible Exposure Limit** – Employee exposure to an airborne concentration of lead of 50 micrograms per cubic meter of air (50  $\mu\text{g}/\text{m}^3$ ) averaged over an 8-hour period.

# HEALTH & SAFETY PROCEDURES MANUAL

## LEAD

### 5.0 Requirements

Employees will not be exposed to airborne lead concentrations greater than the permissible exposure limit (PEL) of 50 µg/m<sup>3</sup> averaged over an 8-hour period, (or, for non-standard work shifts, to the allowable employee exposure in µg/m<sup>3</sup>, which equals 400 divided by hours, worked in the day).

Respiratory equipment may be worn to reduce employee's exposure to airborne lead (see [Respiratory Protection Procedure](#)). When respirators are worn, the measured exposure can be considered at the level provided by the protection factor of the respirator for those periods when it is worn.

### 5.1 Exposure Monitoring

The Company will conduct exposure monitoring for employees who work in areas where they may be exposed to airborne lead.

Until monitoring results show that employee exposures to airborne lead are below the PEL, the company will provide respiratory protection, protective clothing and equipment, change areas, hand washing facilities, biological monitoring, and training for employees who perform the following tasks:

- Manual scraping, manual sanding, and use of heat gun where lead containing coatings or paints are present.
- Lead burning.
- Welding, cutting, or burning on any structure where lead-containing coatings or paint are present.
- Any other task which may cause exposures to lead above the PEL.

**Note:** Hot work on lead joints is prohibited.

Global Water Resources may discontinue exposure monitoring when at least two consecutive measurements, at least 7 days apart, indicate employee exposures to airborne lead are below the action level. Exposure monitoring will be repeated when there is a change in process or controls.



# HEALTH & SAFETY PROCEDURES MANUAL

## LEAD

Previously collected exposure monitoring data and subjective data can be used to evaluate the need for further monitoring and personal protective equipment and work practices required. This data should be reviewed by the Operational Management Department or a Certified Industrial Hygienist.

The Company will notify employees in writing of their exposure monitoring results within 5 working days after receiving of analytical results. The Company will allow affected employees or their designated representative to observe lead exposure monitoring. The observer must comply with all applicable health and safety procedures.

### **5.2 Medical Surveillance**

The Company will make available, at no cost, initial medical surveillance for employees occupationally exposed to lead at or above the action level for more than 1 day per year.

Employees involved in activities that may result in exposure to airborne lead at or above the action level may receive pre and post-project medical surveillance in the form of blood sampling and analysis for lead or zinc protoporphyrin levels. An OSHA-approved laboratory will analyze the biological test samples.

The Company will provide medical surveillance to employees if they are exposed at or above the action level for more than 30 days in any consecutive 12 months as follows:

- At least every 2 months for the first 6 months and every 6 months thereafter for employees exposed at or above the action level for more than 30 days annually.
- Within 2 weeks of the initial test indicating blood lead levels at or above 40 micrograms per deciliter ( $\mu\text{g}/\text{dl}$ ).
- At least every 2 months for employees whose last blood tests indicated a blood lead level at or above 40  $\mu\text{g}/\text{dl}$ .
- At least monthly during the period for each employee removed from lead-related projects because tests showed an elevated blood lead level of 50  $\mu\text{g}/\text{dL}$ .

# HEALTH & SAFETY PROCEDURES MANUAL

## LEAD

### 5.3 Training

The company will train employees exposed to airborne lead at or above the action level on any day on lead hazards, including the requirements for warning signs, labels, and material safety data sheets (MSDSs). Training will be conducted before work begins and will include:

- The contents of OSHA's lead standard.
- The specific nature of the operations that could cause employee exposure to airborne lead above the action level.
- The purpose, proper selection, fit, use, and limitations of respirators
- The purpose and a description of the medical surveillance program and the medical removal protection program.
- The engineering and work practice controls associated with employees' job assignments.
- The contents of the compliance plan in effect.
- Instructions to employees that chelating agents must not be used routinely to remove lead from their bodies and when necessary only under medical supervision.
- The right to access records under "Access to Employee Exposure and Medical Records," 29 CFR 1910.1020.

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# **HEALTH & SAFETY PROCEDURES MANUAL** **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL** **PROGRAM**

## **1.0 Purpose**

- This procedure establishes minimum, requirements for the lockout and/or tag-out of energy-isolating devices. Use this procedure to ensure that the machine, equipment or pipeline is isolated from all potentially hazardous energy sources and locked out or tagged out before employees perform any servicing or maintenance activities.
  
- This program has been implemented to protect all persons who service or maintain machines, equipment, valves, wires and pipelines from the unexpected energy, startup or release of energy which could cause injury to such persons or property.
  
- Operating rules have been adopted pursuant to the Federal OSHA Standard CFR 1910.147, Subpart J.

## **2.0 Scope**

- The procedures apply to any of the following situations:
  1. The employee is required to remove or bypass a guard or other safety device.
  2. The employee is required to place any part of his/her body into an area on a machine or piece of equipment where work is actually performed upon the material (point of operation).
  3. An associated danger zone exists during the operating cycle.
  
- The procedures do not apply to the following:
  1. Work on cord and plug-connected portable electrical equipment where the unplugging of the equipment controls the unexpected energizing or start-up of the equipment, provided the plug is under the exclusive control of the employee performing the work.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

# **HEALTH & SAFETY PROCEDURES MANUAL** **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL** **PROGRAM**

Supervisors will require authorized employees to perform the lockout/tag-out in accordance with this procedure.

Supervisors will instruct all employees who have occasion to perform duties, even occasionally, with or near affected equipment in the safety significance of the lockout/tag-out procedure.

Supervisors will require all employees to comply with procedures pertaining to lockout/tag-out.

## **3.2 Employees**

Employees are responsible for complying with this procedure.

Only employees who have been trained in the specific lockout/tag-out procedures and designated as authorized employees are allowed to implement such procedures.

Employees will not start equipment which is locked or tagged out (in accordance with this procedure) or attempt to start, energize or use that machine or piece of equipment.

## **3.3 Supervisor and Authorized Employee**

The supervisor and authorized employee are responsible for determining lockout requirements for a specific job and developing the written procedure where required.

## **4.0 Definitions**

**Affected Employee** – One whose job requires him/her to operate or use equipment on which servicing or maintenance is being performed under lockout, or whose job requires him/her to be in the area of a lockout

**Authorized Employee** – Is the plant mechanic, crew leader, or other employee who is directly in charge of the work. Lockout or tag-out can only be performed by authorized employees.

**Energy Isolating Device** – Is a manually operated circuit breaker, disconnect switch, line valve or similar device used to block or isolate energy.

**Energy Source** – Can be hydraulic pressure, pneumatic pressure, electrical, chemical, kinetic, potential, thermal, or other form of energy.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL**

### **PROGRAM**

**Lockout Device** – Utilizes positive means, such as a lock and key, or combination, to physically hold an energy-isolating device in a safe position to prevent the energizing of a machine or equipment.

**Tag-out Device** – Is a prominent warning device, such as a tag, and its means of attachment, which can be securely fastened to an energy-isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag-out device is removed.

### **5.0 General Information And Rules**

- Lockout is the preferred method for isolating machines, equipment and pipelines from sources of energy. Lockout devices are to be used whenever lockout is possible. In certain situations, the energy-isolating device cannot be locked out (e.g., underground valves). In those situations, appropriate tag-out procedures must be utilized which provide a level of safety equivalent to that obtained by using a lockout device.
- Use lockout and tag-out devices which have been approved by your supervisor and cannot be used for other purposes.
- The supervisors of the authorized employees shall oversee lock issuance, maintain records and ensure that each lock can be identified with a receiving employee.
- Tag-out devices must be resistant to chemicals and wet conditions, must identify the employee who applied the device, and must warn about the hazards of operating the equipment. Do not use makeshift tags.
- Due to the age and design of some equipment, it may not be possible to physically lock out an isolating device. In these cases, efforts should be made to secure a device to the equipment so that it can be physically locked out. If this is not possible, the problem should be reported to the department supervisor.
- If equipment cannot be locked out, then tag-out must be used and these rules must be followed:
  - a. The tag-out device must be placed at the same location that the lockout device would have been applied or otherwise in a position where it is obvious.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL PROGRAM**

b. An additional safety measure must be taken if possible to ensure full employee protection, such as removing an isolating circuit element, blocking a control switch, opening an extra disconnect device, or removing a valve handle.

### **6.0 Lockout/Tag-out Procedures**

The following procedures must be followed by the authorized employee for every lockout or tag-out.

- Notify all affected employees of the application of lockout/tag-out devices before the controls are applied. (This can also be done by the supervisor of the affected employees).
- Obtain knowledge of the type and magnitude of the energy to be controlled, the hazard of the energy involved, and the means of controlling the energy.
- Shut down the machine or equipment by following the correct procedure for that piece of equipment.
- Isolate the machine or equipment by locating and controlling all energy sources to it.
- Apply the lockout device(s) to hold the machine or equipment in a “safe” position. Attach a tag to the lockout device that clearly indicates that operation of the equipment is prohibited.
- Relieve, disconnect, restrain, or otherwise render safe any stored residual energy. If re-accumulation of any stored energy is possible, continue to verify that it has been rendered safe until the job is complete.
- Verify that the machine or equipment cannot be operated before proceeding with the repair or maintenance work. This is accomplished by trying to start up the equipment.
- When maintenance has been completed, check to make sure that non-essential items (tools, extra parts, etc.) are removed, machine components are intact, and employees are safely positioned or removed. Ensure that equipment is parked in the Home, or safe Start position.
- Remove the lockout/tag-out devices, and then notify all affected employees that the devices have been removed and the equipment is operational.

# **HEALTH & SAFETY PROCEDURES MANUAL** **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL** **PROGRAM**

**Note:** For lockout/tag-out procedures for specific equipment/jobs, see [Procedure Development Guidelines](#).

## **7.0 Special Considerations**

- When several employees are involved in the maintenance work, each authorized employee must affix and remove his/her own lock/tag. However, one authorized employee still has overall responsibility for coordinating the work and making sure correct lockout/tag-out procedures are followed.
- When an energy-isolating device cannot accept multiple locks and/or tags, utilize a multiple lockout/tag-out device (hasp).
- In the event maintenance or repair of equipment that is locked or tagged out is carried into the next shift, the oncoming employee must affix his/her lock/tag before the off-going employee removes his/her device.
- In the event an employee has left equipment locked/tagged out for an unknown reason and the equipment must be returned to service requiring the removal of the lock or tag, the following procedure must be adhered to:
  - a. If the employee is at the workplace, they shall remove the lock and tag.
  - b. If the employee has left the workplace, every effort shall be made to contact the employee to determine the reason for leaving the lock and tag.
  - c. If the employee cannot be contacted either at the workplace or at home, the department supervisor must check out the equipment to ensure it is safe to remove the lock and tag. If it is safe to do so, the supervisor can direct that the lock and tag be removed. The incident should be documented for investigation, and the employee who affixed the lock and tag must be notified of the removal when they return to the workplace.
- When an outside contractor (servicing personnel) is engaged in activities covered by the scope and application of this program, the following requirements must be accomplished:
  - a. The on-site employer Global Water Resources and the outside contractor shall inform each other of their respective lockout/tag-out procedures.

# **HEALTH & SAFETY PROCEDURES MANUAL** **LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL** **PROGRAM**

b. The on-site employer shall ensure that their employees understand and comply with the restrictions and prohibitions of the outside contractor's energy control procedures.

## **8.0 Training**

- Training will be conducted for all authorized and affected employees on the Lockout/Tag-out standard. The training will include recognition of types and magnitudes of hazardous energy sources in the workplace, methods and means necessary for energy isolation and control, and the purpose and use of energy control procedures.
- Employees will also be trained regarding the dangers of attempting to energize equipment that has been locked or tagged out, and trained on the limitations of tag-out alone.
- Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or process that presents a new hazard, or when there is a change in the energy control program.
- Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the Company has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

## **9.0 Documentation Of Lockout/Tag-out Procedures**

Procedures for controlling hazardous energy sources for equipment, machinery, or a process for the purpose of performing repair or maintenance, must be documented.

## **10.0 Inspections**

- OSHA requires a safety audit annually to certify effectiveness and compliance with this program. All such certifications shall be kept on file and available for inspection. If an inspection reveals a deficiency, then retraining is required.
- Periodic inspections will be conducted by authorized employees, supervisors, a Safety Committee, or the Safety Department. The inspections will be for the purpose of reviewing employee responsibilities and correcting deficiencies in the program.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **MACHINE GUARDING**

### **1.0 Purpose**

Describe general rules and requirements for the safe use of stationary or portable equipment and machinery.

### **2.0 Scope**

This procedure is developed in accordance with OSHA 29 CFR 1910.212 for the purpose of employee safety. The company designed this section for all its operations.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

The company is responsible for assuring the proper use, condition and maintenance of all equipment and equipment to be used by employees.

During the job specific part of new hire orientation, and when necessary, supervisors shall be able to explain:

- .. Each step of a job or task
- .. What is to be done and why
- .. What hazards are involved
- .. How to perform the job safely
- .. Capabilities and limitations of the equipment and/or equipment each employee will be using
- .. Review of the machine guarding provided and used when operating the equipment

The supervisor shall ensure that employees know how to safely use equipment they are required to work with.

The supervisor shall ensure that employees have been properly trained in the safe use of all shop machinery

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **MACHINE GUARDING**

### **3.2 Employees**

All employees shall:

- .. Know the application, limitation, and potential hazards of the equipment used.
- .. Select the proper equipment for the job.
- .. Remove adjusting keys and wrenches before turning on equipment.
- .. Not use equipment with frayed cords or loose or broken switches.
- .. Keep guards in place and in working order.
- .. Have ground prongs in place or use equipment marked "double insulated."
- .. Maintain working areas free of clutter.
- .. Stay alert to potential hazards in the working environment such as damp locations or the presence of highly combustible materials.
- .. Dress properly to prevent loose clothing from getting caught in moving parts.
- .. Use safety glasses, dust, or face masks, or other protective clothing and equipment when necessary.
- .. Not surprise or distract anyone using machinery or powered equipment.

### **4.0 Definitions**

**Authorized Person** – One to whom the authority and responsibility to perform a specific assignment has been given by the employer.

**Automatic Feeding** – The material or part being processed is placed within or removed from the point of operation by a method or means not requiring action by an operator.

**Direct Drive Equipment** – The type of driving arrangement where no clutch is used.

**Feeding** – The process of placing or removing material within or from the point of operation.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **MACHINE GUARDING**

**Guard** – A barrier that prevents entry of the operator's hands or fingers into the point of operation.

**Manual Feeding** – The material or part being processed is handled by the operator.

**Mechanical Power Transmission Apparatus** – all components of the mechanical system which transmit energy from the prime mover (power source) to the part of the machine performing the work. These components which include flywheels, pulleys, belts, connecting rods, shafting, couplings, cams, spindles, cranks, and gears. The focus is to ensure that employees cannot be injured from being caught by rotating members, running nip points, sprockets or pulleys.

**Operator's Station** – The complete complement of controls used by or available to an operator on a given operation.

## **5.0 Procedures**

### **5.1 Requirements**

Any machine part, function, or process that can cause injury must be guarded. Where the operation of a machine or accidental contact with a machine can injure an operator or others in the vicinity, the hazard must be either controlled or eliminated.

### **5.2 Where Mechanical Hazards Occur**

Machines will be guarded in three basic areas:

.. The point of operation – that point where work is performed on the material, such as cutting, shaping, boring, or forming of stock.

.. Power transmission apparatus – all components of mechanical system which transmit energy to the part of the machine performing the work. These components include flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks, and gears.

.. Other moving parts – all parts of the machine which move while the machine is working. These can include reciprocating, rotating, and transverse moving parts, as well as feed mechanisms and auxiliary parts of the machine.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **MACHINE GUARDING**

### **5.3 Hazardous Mechanical Motions and Actions**

These different types of hazardous mechanical motions and actions are basic to nearly all machines, and recognizing them is the first step toward protecting workers from the danger they present.

The basic types of hazardous mechanical motions and actions are:

.. Rotating – (including in-running nip points) – Rotating Motion can be dangerous; even smooth, slowly rotating shafts can grip clothing, and force an arm or hand into a dangerous position. Injuries due to contact with rotating parts can be severe.

.. Reciprocating – A back and forth or up and down motion. Workers can be struck by or caught between a moving or stationary part.

.. Traverse – A move in a straight continuous line. A worker may be struck by or caught between a moving or stationary part.

### **5.4 Machine Guarding**

.. Machine guards will be provided to protect employees from hazards such as those created by point of operation, running nip points, rotating parts, flying chips and sparks.

.. The point of operation of machines whose operation exposes an employee to injury shall be guarded.

.. Revolving drums, barrels and containers will be guarded by an enclosure interlocked with the drive mechanism.

.. Fixed guards will not be removed under any circumstances in the course of normal work.

.. Fixed machinery will be securely anchored to prevent movement.

• Guards for mechanical power transmission equipment shall be made of metal or other suitable material.

• All pulleys, belts, sprockets and chains, flywheels, shafting and shaft projections, gears and couplings, or other rotating or reciprocating parts, within 7 feet of the floor or working platform shall be effectively guarded.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **MACHINE GUARDING**

- Where gears require a guard, the guard shall extend 6 inches above the mesh point by a band guard covering the face, or be completely enclosed.
- Couplings with bolts, nuts or set screws extending beyond the flange of the coupling shall be guarded by a safety sleeve.
- Belts, pulleys, and shafting located in rooms used exclusively for power transmission apparatus need not be guarded when the following requirements are met:
  1. The basement, tower, or room occupied by transmission equipment is locked against unauthorized entrance;
  2. The vertical clearance in passageways between the floor and power transmission beams, ceiling, or any other objects is not less than 5 feet 6 inches.

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# **HEALTH & SAFETY PROCEDURES MANUAL** **MODIFIED DUTY PROGRAM (ALSO KNOWN AS EARLY** **RETURN TO WORK**

## **1.0 Purpose**

To establish procedures for returning employees with job-related injuries or illnesses to work by providing modified duty job assignments.

## **2.0 Scope**

This applies to all Company operations.

## **3.0 Responsibilities**

### **3.1 Management/Supervisors**

It is Management's/supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

## **4.0 Definition**

**Modified Duty** – An assignment provided temporarily to an employee who, because of a job-related injury or illness, is physically or mentally unable to perform their normal assignment during all or any part of the normal workday or shift.

## **5.0 Procedures**

After initial examination of an injured employee, the examining physician or a Company designated physician may authorize a return to work on a modified basis (modified duty), provided modified duty work is available. The physician must specify the employee's work limitations and duration. The company will determine eligibility for such work. Each business unit will establish the time limit for modified duty.

Modified duty assignments are *temporary* and do not in any way constitute *permanent* assignment to work with limited duties. There is no guarantee the Company can offer modified duty, but the Company will do its best to accommodate the injured employee.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OFFICE SAFETY**

### **1.0 Purpose**

The purpose of this procedure is to define safe practices for office environment within Global Water Resources operations.

### **2.0 Scope**

This procedure applies to all Global Water Resources office environments.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that office environments are maintained in a safe and orderly condition and that employees follow prescribed rules and practices.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and safe working practices.

### **4.0 General Rules**

- Know the location of the nearest fire extinguishers and closest and alternate exits.
- Be familiar with emergency telephone numbers used to summon internal and external help.
- Select shoes appropriate for floor conditions to prevent slips and falls
- Request additional light in poorly lit areas.
- Clear traffic areas and work areas of obstacles.
- Report rolls in floor mats and carpets, which can create a tripping hazard.
- Keep electric cords clear of traffic areas.
- Clean up spills promptly, and pick up paper clips, rubber bands, and pencils.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **OFFICE SAFETY**

- Adjust workstation to eliminate exposure to ergonomic related injuries.
- Close all desk and file cabinet drawers after use.
- Don't overload the top drawers of file cabinets – the cabinets could topple.
- Don't stand on stools with wheels to reach high places. Use a stepladder.
- Do not lean back while sitting in chair.
- Be careful when using manual or power cutters, shears and staplers.
- Approach corners and turns with caution.
- Do not use elevators in the event of a fire alarm; use the stairs instead.
- Be wary of doors that swing out. Open doors slowly.
- Use the handrails on stairs. Do not carry materials or equipment on stairs in such a way that prevents you from using the handrails.
- Walk, don't run.
- Report office machines that do not use three-pronged grounding plugs to prevent electrical shock. Electrical outlets in the office should accommodate these plugs.
- Do not perform electrical repairs on equipment.
- Use of space heaters or fans must be approved by the Facility Manager.
- Smoke only in designated areas.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

### **1.0 Purpose**

The company has developed guidelines for management of regulatory inspections performed by the Federal or State Occupational Safety and Health Administration (OSHA) to ensure they are conducted legally and properly and that the necessary information is provided to the company to evaluate the results and respond as necessary.

### **2.0 Purpose**

This procedure applies to all Global Water Resources facilities.

### **3.0 Responsibilities**

#### **3.1.... Preparing For An Inspection**

Supervisors are responsible for following this procedure, notifying management in a timely manner of all regulatory inspections, and cooperating with the OSHA Inspector as outlined herein.

#### **3.2.... Employees**

Employees have the responsibility of cooperating and participating as requested in regulatory inspections and as outlined herein.

### **4.0 Definitions**

**Complaints and Referrals** – Formal complaints given to OSHA by an employee, a representative of employees, other Federal/State agencies, or a concerned citizen about alleged violations of the OSHA Act or OSHA Standards or about perceived unsafe or unhealthy working conditions.

**Compliance Officer** – The OSHA representative that conducts an investigation on behalf of OSHA.

**Employee Representative** – An employee selected by the employees, a plant health and safety committee, or the employees' union to participate in the OSHA inspection as the employees' representative with OSHA during the inspection.

**Fatality/Catastrophe Investigation** – Investigation of any work-related accident that results in the in-patient hospitalization of three or more employees or the death of one or more employees.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

**Focused Inspections** – OSHA's focused inspections assess the leading hazards on construction sites (falls, struck-by, caught in/between, and electrical) and in general industry. An OSHA Compliance Officer first reviews the safety program in place on the job site and its enforcement. He/she may request a review of written material (such as policies and procedures manuals) and may interview key personnel. If the Compliance Officer determines the safety program is adequate, he/she may conduct a focused inspection. If the program is considered inadequate, the Compliance Officer may conduct a full inspection.

**Imminent Danger** – Any condition where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm immediately or before the damage can be eliminated through normal OSHA enforcement procedures.

**Programmed Inspections** – Inspections that are scheduled according to OSHA's objective selection criteria, which include mortality, injury and illness incidence rates, previous OSHA citation history, employee exposure to certain toxic substances, and special emphasis inspections.

**Un-programmed Inspections** – Inspections that are scheduled when there are reports of imminent danger, fatalities and catastrophes, complaints and referrals, and media reported accidents.

### **5.0 Requirements**

The Supervisor will notify the Global Water Resources Operational Management Department and his/her supervisor of the OSHA inspection as soon as possible if an unannounced inspection is conducted. The Global Water Resources Operational Management Department will determine if any additional personnel will be dispatched to the site to assist in the investigation.

On occasion, instead of a formal inspection, OSHA will notify a company of a Complaint by mail or fax and request a written response within a matter of a few days. All such requests should be treated in the same manner as an inspection notice. The Supervisor will ***immediately*** notify and provide copies to the Global Water Resources Operational Management Department and the Supervisor's supervisor.

No records will be released without approval. It is Global Water Resources practice to require a written request from the Compliance Officer before sending copies to OSHA and to have the copies formally sent to OSHA by the Global Water Resources Operational Management Department.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **OSHA COMPLIANCE INSPECTIONS**

All internal health and safety audit results shall be marked “privileged and confidential” and not released to outside parties, including OSHA, without approval by the Global Water Resources Legal Department.

All privileged and/or confidential documents maintained at a company facility or job site should be maintained in a secure location and not intermingled with non-privileged materials. The files containing these documents should be marked privileged and confidential if not otherwise self-evident from the location where the documents are being maintained. Keep confidential business information (such as trade secrets and client lists) separate from privileged documents (such attorney-client communications and audit reports).

Do not show privileged and/or confidential documents to any outside parties, including OSHA, without approval of the Global Water Resources Legal Department. See 29 CFR §1903.9.

- Not provide any personal protective equipment for the Compliance Officer to wear. It is expected that the Compliance Officer will bring his/her own equipment.
- Correct any apparent violations identified by the Compliance Officer immediately if possible.

The Global Water Resources t Operational Management Department will:

- Notify the Global Water Resources Manager - Service Delivery and the Global Water Resources Legal Department as soon as possible.
- Notify the Global Water Resources Human Resources Department of significant personal injuries or fatalities.
- Maintain periodic (daily) communication with site management and the Global Water Resources Operational Management representative to keep them apprised of response strategy and developments in the investigation.
- Notify the Global Water Resources Risk Management (Insurance) Department if the inspection is the result of a serious injury or property damage.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

### **5.1 Preparing For An Inspection**

The Supervisor will have the following records/programs/equipment available and in good order at each facility/site, as applicable. This list is not inclusive and depends on the facility/site inspected. The Global Water Resources Operational Management Department should be consulted for a complete list.

- Properly displayed OSHA "Job Health and Safety Protection" poster
- Current copies of 29 CFR Part 1910 (General Industry Standards) and 29 CFR Part 1926 (Construction Standards)
- This Global Water Resources Health and Safety Policies and procedures Manual, and related materials (for example, employee handbooks)
- The Global Water Resources Safety Manual
- CHASP including a hazard analysis or chemical hygiene plan (as applicable)
- .. Hazard Communication Program:
  1. Chemical inventory list
  2. Site material safety data sheets (MSDS)
- Process Safety Management (PSM) Plan
- Lock-Out/Tag-Out Program and Procedures
- Confined Space Entry Program and Procedures
- Respiratory Protection Program including the Annual Respiratory Protection Audit (if applicable)
- Training records

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

- Employee exposure and medical records, if applicable (retain for 30 years):
  1. Exposure and biological monitoring records (including periodic and annual testing and monitoring required by OSHA regulations)
  2. Respiratory fit test records
  3. Medical files
  
- Annual notification of employee exposure medical records (if applicable)
  
- A camera with film and fresh batteries

The Global Water Resources Operational Management Department will have the following records/programs available and in good order:

- OSHA logs for the last 5 calendar years - OSHA Form 300 (Log and Summary of Occupational Injuries and Illnesses)
  
- Current and previous OSHA 101 (Supplementary Record of Occupational Injuries and Illnesses) or equivalent First Report of Injury forms for the State (retain for 5 years)

For fixed facilities, the records outlined in this section may be kept on-site, with duplicate records maintained in the Regional Global Water Resources t Operational Management Department. For temporary facilities, the operational area can maintain the OSHA 300 logs and OSHA 101 forms and provide them to the site when needed.

Review any prior Global Water Resources Operational Management Department audits, insurance company audits, and OSHA Citations with respect to the facility/site and make sure that all noted deficiencies have been abated.

### **5.2 Inspection Procedures**

#### **5.3**

The Supervisor will:

Notify the Global Water Resources Operational Management Department if any employer or site owner refuses to allow Global Water Resources to participate in the inspection if the inspection involves work areas where Global Water Resources is performing work (applicable to field projects conducted at customer sites).

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

Review the Compliance Officer's credentials and verify them by contacting OSHA's regional office if there is any doubt about the Compliance Officer's identity or the authenticity of the credentials. Ask each OSHA Compliance Officer for his/her official business card. If he/she has no business card, write down his/her name, position, telephone number, and agency affiliation.

As requested by the Compliance Officer, provide information on all training, medical, and personal protective equipment requirements for the worksite. Provide requested documents for inspection **on site**. If the OSHA Compliance Officer requests copies of records, documents, and/or other information to take off site, the Supervisor will contact the Global Water Resources Legal Department for approval.

Whenever an OSHA Compliance Officer arrives at a facility/site, he/she should be requested to wait in the waiting area until the Supervisor can be summoned to meet with him/her. Additionally, if a Global Water Resources Operational Management Department representative will arrive on site within a reasonable period of time (for example, within an hour), the OSHA Compliance Officer should be asked to wait for the representative to arrive. The Supervisor, or his/her designee, will take notes on all items discussed during the visit.

If an Operational Management Department representative is on site, he or she will take the lead in dealing with the OSHA Compliance Officer.

The following is a guideline if an OSHA Compliance Officer (CO) visits your facility or site:

1. Ask the CO for their Government ID and business card. Be courteous and respectful.
2. Ask the CO if you may contact local safety personnel. Usually they will have no problem with this request if you limit the waiting period to under an hour. If the appropriate Operational Management personnel are more than an hour away, inform them of this fact and let them decide if they want to continue the inspection without them being present. ***Please contact them within 30 minutes even if you believe they cannot make it to the site within the hour.***
3. If the CO conducts an inspection, take pictures of items they take pictures of and write down any comments they may make.
4. If the CO points out an item, tells you it is a violation and asks you when you are going to correct it, simply say you will discuss the situation with your safety manager. Do not commit to an apparent violation by saying you will correct something, the CO may be wrong.

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## **OSHA COMPLIANCE INSPECTIONS**

5. The CO will want to interview employees. It is suggested that you limit the interview to 15 minutes per employee and tell the CO they are on the clock. If the CO would like to contact the employee after work they should ask for the employee's phone number.

6. Finally, if you are asked a question and don't know the answer, or are confused by the question, simply tell the CO you will write it down and have someone respond to them.

Keep in mind you should cooperate, but also that they are not entitled to take everything they request. If they ask for copies of policies, programs, training or other information, tell them they may look at the material, but that because of company policy (this memo) it is not intended to be public information.

The rule of thumb is to not volunteer information, keep discussion to a minimum and focus on the subject of the discussion. Do not tell of past experiences or go off in other directions, and when possible keep your answers to "yes", "no", "no comment" or "I'll have to discuss that with my manager".

### **5.2.1 Multi-Employer Sites**

On multi-employer sites, the Supervisor will notify the owner, subcontractors, and other contractors of the inspection, and representatives will be invited to meet with the OSHA Compliance Officer.

If any employer demands that OSHA obtain a search warrant before inspecting that employer's areas, Global Water Resources will respect that request. The Supervisor will ask the Compliance Officer(s) to explain the options for continuing the inspection to the group (call the office for instructions, leave the site, inspect the areas of the other employers, etc.). If Global Water Resources is acting as the employer "in charge" at the site, the Supervisor will allow OSHA free access to all areas under our control, including the areas of our contractors and subcontractors.

During an OSHA visit at a worksite where Global Water Resources is one of many employers, the Global Water Resources Supervisor will comply with the requests of the employer "in charge" of the site: the general contractor, the construction manager, the owner, etc. The employer in charge should provide the company the opportunity to participate in the opening and closing conferences and in the walk around inspection in our areas. If the employer "in charge" of the site demands a search warrant or if Global Water Resources is denied participation in the inspection, the Global Water Resources on-site representative will immediately contact the Global Water Resources Operational Management Department.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

### **5.2.2 Opening Conference and Inspection Tour**

The OSHA Compliance Officer will conduct an opening conference at which he/she will explain the purpose of his/her visit, how the establishment was selected for inspection, the scope of the inspection, and the standards that apply. The type of inspection (for example, focused) will be disclosed, as will the areas and subject matters to be inspected

The Company will be asked to select an employer representative to accompany the Compliance Officer during the inspection. The Supervisor should designate himself/herself. An authorized Employee Representative may also be given the opportunity to attend the opening conference and to accompany the Compliance Officer during the inspection.

If the Compliance Officer is at the site as a result of a Complaint lodged against Global Water Services, OSHA must inform us so during the opening conference. OSHA is also required to give us a copy of the Complaint and review the items in the Complaint. OSHA will not reveal the name of the individual who filed the Complaint, but will advise whether the Complaint was filed by an employee, a union, or some other person.

The Supervisor will check on the Complaint form for the "Employer's Name." If Global Water Resources is not named as the employer, the Supervisor will immediately inform the Compliance Officer that we are not involved.

The Compliance Officer will probably initiate the inspection by first asking to see various records, some of which should be available on site or from the Global Water Resources Human Resource / Operational Management Department. An inspection may last several days.

Unreasonable delays that may interrupt the activities of the Compliance Officer must be avoided. OSHA may take legal action for delays greater than one hour.

The Compliance Officer may request a tour of the site to identify potential health or safety violations, assess employee knowledge, and/or collect samples to determine compliance with permissible exposure limits (PELs). During the tour, the Compliance Officer may observe working conditions and interview employees.

During the inspection, the Supervisor (or his/her designee) must take detailed notes of the inspection activities, including the areas inspected, the persons being interviewed, and the types of questions being asked by the Compliance Officer. Do not permit the Compliance Officer to walk around unescorted. OSHA Compliance Officers are required to limit their inspections to the scope of the particular type of inspection being conducted, except for hazardous conditions that are in plain view during the course of the inspection.



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### **OSHA COMPLIANCE INSPECTIONS**

If air, water, or soil samples are being collected by the Compliance Officer, it is very important to record the number and exact locations of any samples that are taken. Try to obtain the Compliance Officer's agreement in advance as to how the samples will be collected and to provide the company with a portion of each sample that is equal to the portion taken by the government in both weight and volume ("split sample") when feasible. This will not be possible when personal exposure air monitoring is conducted. If the Compliance Officer will not agree to provide the company with a split sample, it is very important that a trained representative of the company conduct similar sampling in the same locations on the same day, during the inspection or as soon as possible after OSHA finishes its inspection.

The Supervisor should notify the Operational Management Department as soon as they become aware of planned sampling activities so that arrangements can be made for concurrent sampling. If a camera is available, take videotapes or photographs of the places where samples were taken from.

Ask the Compliance Officer to provide the company with a log of what samples it he/she took and from where. Also ask for a description of the tests OSHA intends to conduct on the samples.

If the Compliance Officer takes any site photographs or videotapes, the Supervisor should also take duplicate photos or, at least, take detailed notes on the objects being photographed. Request the Compliance Officer to provide the company with a set of the photographs or videotapes he/she takes.

#### **5.2.3.. Interviews**

OSHA or employees can request that interviews be conducted without Global Water Resources present. Global Water Resources has the right to attend and will attend interviews of all supervisory employees. Employees can refuse to respond to questions, and they may request a member of management or the Global Water Resources legal counsel is present during the questioning. The Supervisor must explain to employees to answer all questions asked by the Compliance Officer in a truthful, brief, factual, and specific manner. **No employee shall be instructed not to cooperate with OSHA.** The Supervisor will document the names of all employees' OSHA interviews.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

The Compliance Officer may request that employees review and sign an interview statement that documents the interview. Employees may request that Global Water Resources review the interview statements before they sign the statements. Supervisory employees should not sign the statements until the Global Water Resources Legal Department has reviewed them. The Supervisor will contact the Global Water Resources Legal Department to review the statements before release to OSHA. The Supervisor should request employees who provided written statements to OSHA to ask OSHA for a copy of their statements and to provide Global Water Resources with a copy of their statements.

### **5.2.4.. Closing Conference**

At the end of the inspection, the Compliance Officer will usually conduct a closing conference. If the inspector does not offer to hold a closing conference we have the right to request one. At the conference, the Compliance Officer will describe any apparent violations found during the inspection and indicate all applicable sections of the OSHA standards that may have been violated. The Supervisor should take detailed notes of the closing conference discussions, including recording the OSHA regulation numbers cited by the Compliance Officer.

Whenever possible, the Global Water Resources Operational Management Department representative should be included in the closing conference, whether in person or by telephone. After the closing conference, the Supervisor will immediately notify Global Water Resources, the Global Water Resources Legal Department, and the **Operational Management Department** of the results of the inspection.

The Supervisor should provide the Compliance Officer with the name, title, full post office mailing address, phone number, and fax number of the Global Water Resources official to whom all OSHA correspondence pertaining to the inspection should be sent. In the case of a fixed company facility, the person identified should be the senior company official on site. In the case of a field/construction site, the person identified should be the senior company official at the headquarters location for the Global Water Resources company involved. Notify the Operational Management Department of the person you have identified.

If the Compliance Officer does not have enough information to fully conduct a closing conference then request a second closing conference to discuss the findings of the inspection and the basis for any citations that are to be issued.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **OSHA COMPLIANCE INSPECTIONS**

### **5.3 OSHA Citations**

OSHA does not issue any Citations at the closing conference but sends them by certified mail. The person signing the certified mail postal receipt must **clearly mark the date and time received on the first page of the Citation.**

The Supervisor will contact the Operational Management Department **immediately** after receiving an OSHA Citation or letter of inquiry and provide copies of the document to them.

The Supervisor and the Global Water Resources Operational Management Department will work together to:

- Compare the alleged violations set forth in the Citation with both the notes taken during the inspection and at the closing conference and the actual site conditions at the time of the inspection and presently.
  
- Post a copy of the Citation at or near the place where each alleged violation occurred and where it will be readily visible. Citations will remain posted for 3 working days or until the violation is corrected (or other period of time as defined in the Citation), whichever is longer. If a Citation cannot be posted at the location of the violation, then it will be posted in an area where other OSHA postings and employee notices are located.
  
- Take whatever corrective action is needed to abate violations found by OSHA if the violations have not already been corrected.

The instructions included with a Citation state that if the employer is not contesting the Citation, then the employer must notify OSHA in writing of actions taken to correct the alleged violations and send OSHA a check for the proposed penalties. Answering such correspondence is the responsibility of Global Water Resources in conjunction with the Global Water Resources Legal and Operational Management Departments. The Supervisor will not send anything to OSHA from a worksite without approval from the Global Water Resources Legal Department.

After a thorough review of the Citation, Global Water Resources, in conjunction with the Global Water Resources Legal and Global Water Resources Operational Management Departments, will make the final decision on whether or not to contest OSHA's findings. The opinions of the Supervisor and/or Site Safety Officer and regional management are considered in making that decision.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **OSHA COMPLIANCE INSPECTIONS**

If Global Water Resources decides to contest all or part of the Citation, it must do so in writing within **15 working days** after the date the certified mail postal receipt was signed by Global Water Resources. Some State OSHA programs allow only **15 or less calendar days** for contesting. All correspondence concerning contested Citations is handled at the Regional level.

#### **5.4 No Retaliation**

The Company forbids and will not tolerate retaliation against anyone that reports to Global Water Resources or OSHA unsafe working conditions, assists in making such complaints, or cooperates in a company or OSHA investigation. Any employee who believes he/she has experienced or witnessed such retaliation should immediately notify the Global Water Resources Operational Management Department and the Global Water Resources Legal Department. Anyone engaging in retaliatory conduct will be subject to immediate discipline, up to and including termination of employment.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PERSONAL PROTECTIVE EQUIPMENT**

### **1.0 Purpose**

The following procedure has been developed from a certified assessment of various jobs titles within Global Water Resources (see [PPE form](#)). The [Workplace Hazard Assessment](#) examines the hazards present or likely to be present, which necessitate the use of personal protective equipment (PPE).

The purpose of personal protective clothing and equipment is to shield or isolate individuals from chemical, electrical, physical and biological hazards that may be encountered during hazardous operations in the workplace.

During chemical operations, it may not always be apparent when exposures occur. Many chemicals pose invisible hazards and offer no warning properties. For hazards of specific chemical operations refer to your MSDS for hazard determination.

The use of protective clothing and equipment can itself create significant wearer hazards, such as heat stress, physical and psychological stress, in addition to impaired vision, mobility and communication. Exposure reduction through engineering and/or administrative controls are the preferred method. PPE is considered a last resort for employee protections. All PPE should meet ANSI and other applicable safety standards. The Operational Management Department can assist in the selection of appropriate PPE.

### **2.0 Scope**

This procedure has been written for employees in Global Water Resources who may be required to use PPE such as eye, face, head, hand, body and foot protection. Respiratory protection is covered in another written program (see [Respiratory Protection](#)). This PPE procedure is developed in accordance with OSHA 29 CFR 1910.132.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

- Supervisors shall assist the operating systems in the identification of engineering and/or administrative practices to limit exposure to hazards and assist in the identification of damaged or defective PPE.
- Supervisors shall ensure that employees are provided with PPE appropriate to the potential hazards they may encounter on the job.

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## **PERSONAL PROTECTIVE EQUIPMENT**

- Supervisors will ensure that employees are trained in the use of PPE applicable to the job tasks.
- Supervisors will enforce the proper use of PPE.

### **3.2 Employees**

- Employees will use and maintain PPE as instructed when performing work.

### **4.0 Required Use Of PPE By Task Or Job Classification**

Supervisors have the authority to require PPE for any task not identified in this program. The following tables describe the PPE required to be worn/utilized by task and/or job classification. Employees shall wear appropriate PPE as outlined in the table below.

**Table 1 - Distribution**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Boom truck in operation	Hit by, struck by	Hard hat, safety shoes
Trench work (digging, etc)	Cave in, hit by	Hard hat, safety shoes
Operating pipe saw (ductile iron, PVC, cast iron)	Noise, struck by, airborne projectiles	Hearing protection, safety glasses/goggles, face shield
Operating pipe saw (asbestos cement)	Noise, struck by, airborne projectiles	Hearing protection, safety glasses/goggles, face shield, respiratory protection
Working near backhoe	Struck by	Hard hat, safety shoes
Traffic control-flagging	Struck by vehicle	Orange shirt or reflective vest <sup>1</sup>
Operating jack hammer	Noise, vibration, airborne projectiles, struck by	Hearing protection, anti-vibration gloves, safety glasses/goggles, face shield & metatarsal guards
Operating air compressor	Noise	Hearing protection
Working near traffic	Struck by vehicle	Orange shirt or reflective vest <sup>1</sup>
Locating	Struck by vehicle	Orange shirt or reflective vest (1)
Operating power tools	Particles in eyes	Safety glasses with side shields
Welding	Flames/sparks/heat rays causing burns	Leather gloves, sleeves, face protection, protective lenses, screens when practical
Chemical Handling	Irritation/burns	Chemical resistant gloves, indirect venting splash goggles and face shield
Performing electrical work on energized circuits including voltage testing, energizing and de-energizing circuits.	Arc Flash Burns Shock / Electrocution Arc Flash Blast injuries	Refer to Arc Flash Protection <a href="#">Attachment #2</a> and <a href="#">Attachment #3</a>

(1) Requirements vary state to state. Check local and state requirements.

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **PERSONAL PROTECTIVE EQUIPMENT**

**Table 2 - Maintenance**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Cylinder change	Inhalation, chemical contact	See Global Water Resources procedure regarding respirator selection and goggles if using half-mask respirator
Hoist operation	Struck by	Hard hat, safety shoes
Welding	Flames/sparks/heat rays causing burns	Leather gloves, long sleeve shirts, face protection, respiratory protection as required, protective lenses and screens when practical
Material handling	Foot injury	Safety shoes
Operating power tools	Particles in eyes	Safety glasses with side shields, face shield, durable gloves as required
Diesel pump/Generator Operations	Noise	Hearing protection
Performing electrical work on energized circuits including voltage testing, energizing and de-energizing circuits.	Arc Flash Burns Shock / Electrocution Arc Flash Blast injuries	Refer to Arc Flash Protection <a href="#">Attachment #2</a> and <a href="#">Attachment #3</a>

**Table 3 – Operators**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Checking/cleaning chemical indirect feed equipment	Particles/chemicals in eyes	Safety glasses or non-vented Goggles
Handling concentrated Chemicals in large volume	Chemical contact with skin and eyes	Indirect or non-vented goggles, non-permeable gloves, aprons
Diluted chemicals	Chemical contact with eyes & skin	Indirect or non-vented goggles and face shields, chemical resistant gloves
Diesel Pump/Generator Operations	Noise	Hearing protection
Material handling	Foot injury	Steel toed safety shoes
Performing electrical work on energized circuits including voltage testing, energizing and de-energizing circuits.	Arc Flash Burns Shock / Electrocution Arc Flash Blast injuries	Refer to Arc Flash Protection <a href="#">Attachment #2</a> and <a href="#">Attachment #3</a>

**Table 4 – Network Operations (except Meter Readers)**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Cleaning/installing meters	Particles in eyes	Safety glasses w/side shields or Goggles
Material handling/carrying Parts	Foot injury	Safety shoes
Operating power tools	Particles in eyes	Safety glasses with side shields or goggles, face shields & durable gloves
Performing electrical work on energized circuits including voltage testing, energizing and de-energizing circuits.	Arc Flash Burns Shock / Electrocution Arc Flash Blast injuries	Refer to Arc Flash Protection <a href="#">Attachment #2</a> and <a href="#">Attachment #3</a>

**Table 5 – Meter Readers**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Reading meters	Dog bites	Repellant available
Reading meters	Slips/trips/falls	Ice grips, high traction footwear
Opening heavy meter vault lids (>50 lbs.)	Struck by	Steel toe safety shoes, leather Gloves

**Table 6 – Laboratory**

<b>Job Task</b>	<b>Hazards</b>	<b>Required PPE</b>
Working with/transferring hazardous chemicals	Irritation, burns, Chemical contact with eyes	Chemical resistant gloves, indirect or non-vented goggles, protective aprons, face-shield

## 5.0 Personal Protective Equipment By Body Part

Where employees provide their own PPE, Global Water Resources shall be responsible to ensure its adequacy, including proper maintenance, and sanitation of such equipment. All equipment must meet the proper standards and be free of defects or damages.

### 5.1 Head

Type “1 Class E” or previously designated as Type “B” protection hard hats shall be worn by employees when:

- Visiting construction sites.
- Within 25 feet of the operating limitations of cranes, hoists, backhoes, etc.
- In chlorine room when hoist is in operation.



- Any time when working in or near trench and not protected by overhead equipment guard.
- When the presence of any overhead hazard exists.

## 5.2 Eyes

Safety glasses with approved, side protection or goggles will be worn when:

- Transferring/handling hazardous chemicals.
- Chipping, grinding, buffing, drilling or similar activities.
- Using impact tools.
- Cutting pipe.
- The potential for eye injury exists.
- Welding/oxygen cutting (protective lenses, see following chart).
- Working on energized electrical circuits, equipment, breakers, HOA etc.

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 without going below the minimum.

**Table 7 – Filter Lenses For Protection Against Radiant Energy**

Type	Plate Thickness (Inches)	Minimum Shade
<b>Gas Welding:</b>		
Light	Under 1/8	4
Medium	1/8 to 1/2	5
Heavy	Over 1/2	6

Type	Plate Thickness (Inches)	Minimum Shade
<b>Oxygen Cutting:</b>		
Light	Under 1	3
Medium	1 to 6	4
Heavy	Over 6	5
Arc Welding*	Shades determined by ARC current	10-14

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## **PERSONAL PROTECTIVE EQUIPMENT**

### **5.3 Ears**

Approved hearing protection in the form of plugs or muffs shall be utilized when:

- Using power tools that generate loud noises.
- Working in close proximity to diesel pumps or generators.
- Working in areas designated as, “Hearing Protection Required.”
- Working energized electrical circuits, equipment breakers, HOA etc at a Risk Task Level of two (2) or above (see [attachment #3](#)) Arc Flash Protection.

### **5.4 Face**

Face shields, in addition to indirect or non-vented goggles or safety glasses with side shields shall be worn when transferring/handling large quantities of hazardous liquids or when the potential for a chemical splash exists.

### **5.5 Hands**

Appropriate hand protection will be worn:

- Working with chemicals or solvents
- Exposed to temperature extremes (leather)
- Cleanup of blood or other body fluids
- When working in wastewater treatment
- Construction activities
- Working with or on energized electrical equipment, circuits, breakers, HOA etc.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PERSONAL PROTECTIVE EQUIPMENT**

**Table 8 – Glove Selection Chart\***

<b>Hazardous Materials</b>	<b>Protective Material/Brand (Thickness)</b>	<b>Breakthrough Time*</b>
Acetone	Butyl, 17 mil	> 17 hours
Most corrosives, acids, caustic	Neoprene, 22 mil Viton, 30 mil	> 480 minutes
Chlorine	Neoprene, 22 mil Recommended by Manufacturer	
Hydrofluosilic Acid	Neoprene, 22 mil Viton, 30 mil	
Ferric Chloride	Neoprene, 22 mil Viton, 30 mil	
Fuel Oil	Neoprene, 22 mil Viton, 30 mil	
Sharps/Box Knife	See safety department	
Wastewater treatment operations	Neoprene, 22 mil Viton, 30 mil	
Electrical	Class 0 - 1000 Volt ( <a href="#">Table #1</a> )	NFPA 70E Arc Flash Protection

\* Manufacturer’s specifications and recommendations should be consulted to confirm the information presented in the above chart.

### **5.6 Feet**

Steel toed safety shoes are recommended to be worn when:

- Handling heavy materials or parts.
- When in close proximity to distribution or construction work sites.
- Metatarsal guards will be worn when operating jack hammers.

### **5.7 Lungs**

Refer to [Respiratory Protection Program](#) for proper selection.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PERSONAL PROTECTIVE EQUIPMENT**

### **5.8 Body**

A full body harness, including lanyard, shall be utilized when performing work where the distance between one level and an adjacent unprotected floor/ground level exceeds six (6) feet in construction environments and four (4) feet in plant environments. Refer to [Fall Protection Procedures](#) for further detail and requirements.

FR (Fire Resistant) clothing shall be worn by all employees working on or near energized electrical equipment as required by the NFPA 70E Arc Flash Protection standard. For selection of the proper PPE to be used, refer to [attachment 2](#) and [attachment 3](#) of the [Arc Flash Protection](#) policy.

Chemical splash aprons/slicker suits should be worn when transferring/handling large quantities of hazardous chemicals.

### **6.0 Visitors**

Any Global Water Resources employee escorting visitors will have the responsibility of providing appropriate PPE or avoiding areas/job tasks that would require the use of PPE.

### **7.0 Training**

PPE training will be provided in the following areas:

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

Each affected employee shall demonstrate an understanding of the training and the ability to use PPE properly.

Global Water Resources will verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date of training, and the subject matter of the training.

Refer to the manufacturer's specifications for limitations on any PPE issued.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PIPE PLUGS**

### **1.0 Purpose**

This procedure establishes requirements for the safe use of inflatable pipe plugs to protect all Global Water Resources employees and subcontractors.

### **2.0 Scope**

This procedure applies to all Global Water Resources operations and construction activities.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure and using equipment in the proper manner.

### **4.0 Procedures**

- Equipment must be used, operated and maintained in accordance with the manufacturer's recommendations.
- All employees must be trained in pipe plug use and also have confined space training (see [Confined Space Procedure](#)) before entering a confined space.
- All employees must wear safety glasses and hard hats.
- Gauges, air hoses and plugs must be inspected before each use.
- Pressure regulators shall be used between compressors and plug gauges and hoses.
- Verify minimum and maximum plug inflation pressure of each plug before placement.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PIPE PLUGS**

- Measure pipe diameter before selecting the plug.
- Clean and inspect area for sharp edges, rebar etc. before placement.
- Ropes and air hoses shall be directly installed to plug.
- Only oil filled gauges will be used and properly calibrated per manufactures specifications.
- Poles shall be used to install plugs when practicable.
- If an employee must enter a confined space hole to set the plug (should only inflate the plug until it begins to make contact with pipe surface and then the employee should exit the confined space prior to airing the plug to recommended pressures).
- Ropes shall be used at both end of plugs for large diameter plug placement, so that if it must be released with some back pressure it will prevent it from becoming a projectile and prevent damage to plug.
- **Release back-pressure from pipe first, before deflating plug.**
- No borrowing or lending of pipe plugs is permitted.
- When working in the Danger Zone, the following practices will be adhered to:
  1. Supervisor checks overall plug conditions and monitor for any water changes.
  2. Supervisor verifies that pipe plug and confined space rules are being followed and that the confined space permit is in place.
  3. Maintain and verify upstream manhole for surcharged flow/never let plug go until flow is under control.
  4. Double plug when possible.
  5. Only trained personnel will be used to monitor / maintain plug pressures.
  6. Supervisor verifies regulator and gauges are in place.

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# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PROCESS SAFETY MANAGEMENT/RISK**

### **MANAGEMENT PLAN**

#### **1.0 Purpose**

The goal of the Risk Management/Process Safety Management Procedure (RMP/PSM) is to prevent the accidental release of hazardous chemicals and to mitigate the consequences of such a release by developing and implementing prevention measures designed to reduce the risk of chemical exposure to Global Water Resources employees and to the public.

#### **2.0 Scope**

This procedure applies to all Global Water Resources facilities that operate processes involving a highly hazardous chemical at or above threshold limits as specified in 29 CFR 1910.119. Examples typical chemicals used in the treatment of water are as follows\*:

<b>Chemical Name</b>	<b>Threshold Quantity (PSM)</b>	<b>Threshold Quantity (RMP)</b>
Ammonia, Anhydrous	10,000 lbs.	10,000 lbs.
Chlorine	1,500 lbs.	2,500 lbs.
Sulfur Dioxide, liquid	1,000 lbs.	5,000 lbs.

\* This list serves as a sample of chemical processes typical of the water industry and is not all inclusive.

This procedure also addresses requirements of Environmental Protection Agency's (EPA) RMP Standard (40 CFR 68).

#### **3.0 Responsibilities**

Global Water Resources is committed to providing the support and resources necessary to ensure compliance with this procedure and OSHA 29 CFR 1910.119 and the EPA's RMP Standard 40 CFR 68.

#### **4.0 Definitions**

**CAS** – the Chemical Abstracts Service.

**Catastrophic Release** – a major uncontrolled emission, fire, or explosion, involving one or more highly hazardous chemical(s) that presents serious danger to employees in the workplace.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PROCESS SAFETY MANAGEMENT/RISK**

### **MANAGEMENT PLAN**

**Facility** – the buildings, containers or equipment, which contains a process.

**Highly Hazardous Chemical** – a substance possessing toxic, reactive, flammable, or explosive properties.

**Hot Work** – work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.

**NAICS** – North American Industry Classification System.

**Normally Unoccupied Remote Facility** – a facility, which is operated, maintained or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from all other buildings, processes or persons.

**Offsite** – areas beyond the property boundary of the stationary source, and areas within the property boundary to which the public has routine and unrestricted access during or outside business hours.

**Process** – any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.

**Program 1 Eligibility** – a process covered by EPA’s RMP standard that meets all of the following requirements:

- For the five years prior to RMP submission, the process has not had an accidental release of a regulated substance where exposure to the substance, its reaction products, overpressure generated by an explosion involving the substance, or radiant heat generated by a fire involving the substance led to any of the following offsite – death, injury, or response or restoration activities for an exposure of an environmental receptor;
- The distance to a toxic or flammable endpoint for a worst-case release assessment is less than the distance to any public receptor; and
- Emergency response procedures have been coordinated between the facility and local emergency planning and response organizations.

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Program 2 Eligibility – a process covered by EPA’s RMP standard that does not meet the eligibility requirements for Program 1 or Program 3.

Program 3 Eligibility – a process covered by EPA’s RMP standard that does not meet the eligibility requirements for Program 1 and if either of the following conditions is met:

- The process is in NAICS code 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311, or 32532; or
- The process is subject to OSHA PSM standard 29 CFR 1910.119.

**Public Receptor** – offsite residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the facility where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release.

**Regulated Substance** – any substance listed pursuant to section 112(r)(3) of the Clean Air Act as amended, in 40 CFR §68.130.

**Replacement In Kind** – a replacement that satisfies the design specification.

**Threshold Quantity** – the quantity specified for regulated substances pursuant to section 112(r)(5) of the Clean Air Act as amended, listed in 40 CFR §68.115.

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## **5.0 Employee Participation**

### **5.1 Program Organization**

Employers must develop a written plan of action regarding implementation of employee participation as required. Delegation of responsibility for development of particular elements of the RMP/PSM is as follows:

<b>RMP/PSM Program Element</b>	<b>Responsible Employee</b>
Overall Responsibility (RMP/PSM)	Management – Business Unit
Program Manager	Manager or Specialist
Management Procedures	Manager or Specialist
Hazard Assessment	Manager or Specialist
Process Hazard Analysis	Manager or Specialist
Operating Procedures	Operations Superintendent, Supervisor or Manager
Training	Supervisor and Training Specialist
Pre-Startup	Operations Superintendent, Supervisor or Manager
Mechanical Integrity	Operations Superintendent, Supervisor or Manager
Hot Work Permits	Operations Superintendent, Supervisor or Manager
Management of Change	Operations Superintendent, Supervisor or Manager
Incident Investigation	Operational Risk Manager or Specialist
Emergency Planning	Operational Risk Manager or Specialist

### **5.2 Employee Access To Written Program Information**

Global Water Resources employees operating or maintaining any process subject to RMP/PSM will have direct and routine access to the following current information:

- Material Safety Data Sheets (MSDS);
- Operating procedures;
- Process equipment information;
- Emergency Action Plan; and
- RMP/PSM Program procedures.

Questions concerning RMP and PSM program information should be directed to the employee's supervisor. Additional information concerning the RMP/PSM program may also be assessed through the RMP/PSM program manager.

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**5.3 Employee Involvement**

Global Water Resources employees are involved in the development, implementation and maintenance of individual RMP/PSM program elements as follows:

<b>RMP/PSM Program Element</b>	<b>Employee Involvement</b>	<b>Designated Employee(s)</b>
Process Safety Information	Assist in reviewing P&ID's	Operators, Mechanics
Process Hazards Analysis	PHA team	Mechanics, Operators, Supervisors
Operating Procedures	Assist in development and Review	Mechanics, Operators, Supervisors
Training	Receive initial and refresher training on operating procedures, RMP/PSM overview	Mechanics, Operators, Supervisors
Contractor Safety	Operators notified when contractors are on site and advise supervisors if they observe violations of safety rules	Mechanics, Operators, Supervisors
Pre-startup Safety Review	Include Operators and Mechanics in review	Mechanics, Operators, Supervisors
Mechanical Integrity	Production and/or Maintenance Supervisor responsible for on-going inspections/maintenance of process equipment	Mechanics, Operators, Supervisors
Hot Work Permit	Implement Hot Work Permit Program. Notify operators of hot work activities	Mechanics, Operators, Supervisors
Management of Change	Supervisor advises personnel of changes to chlorine process	Mechanics, Operators, Supervisors
Incident Investigation	Involved personnel will cooperate with investigation team.	Mechanics, Operators, Supervisors
Emergency Planning	Emergency warning and evacuation training provided to employees and contractors – evacuation drills.	Employees and affected contractors.
Compliance Safety Audits	Employees respond to audit questions.	Operators, Mechanics and appropriate supervisors

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## **5.4 Employee Training And Documentation**

All appropriate Global Water Resources employees will receive initial RMP/PSM program orientation. New employees will receive initial RMP/PSM program orientation concurrent with new operator training prior to commencing independent work. Topics during the initial orientation will include:

- An overview of the RMP/PSM program describing all elements; and
- Chlorine process and associated safety training.
- Safe work practices
- Safety and health hazards
- Emergency procedures, including shut-down

Information concerning employee rights and procedures to obtain access to RMP/PSM program material will be conveyed during training.

All employees attending RMP/PSM program training must sign and date an attendance sheet. The documentation will include a statement identifying the undersigned as having received and understood training regarding RMP/PSM program and their right to access all information developed under the OSHA PSM standard (29 CFR 1910.119) and the EPA RMP standard (40 CFR 68).

The Company will provide initial training to all new personnel prior to being qualified to work independently. Refresher training will be provided at least every three years thereafter to all affected employees. The Company will conduct more frequent training if necessary.

The Operational Management Department will maintain employee participation documentation. Documentation will include:

- Training program and handout; and
- Training attendance sheets.
- Training quiz.
- Conduct and development of process hazard analysis and development of the other elements of process safety management.

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## **6.0 Process Safety Information**

### **6.1 Purpose**

Complete and up-to-date process safety information is required to successfully implement most RMP/PSM Program elements, including process hazard analyses (PHA's), training, emergency planning and response, management of change, incident investigation and compliance audits. The purpose of this procedure is to ensure that current written process safety information is developed and maintained in a format that provides easy access by employees, PHA teams and auditors.

### **6.2 Scope**

This procedure outlines procedures for assembling and updating process safety information for the subject chemical process (es). Process safety information includes, but is not limited to the following:

- The hazards associated with the chemical;
- The process technology; and
- The process equipment.

### **6.3 Responsibilities**

The local Operational Risk manager or specialist will be responsible for maintaining the portion of this section that relates to the chemical hazards, process chemistry, and the Material Safety Data Sheet contained in the appendix to the written program. All other items in this section are the responsibility of the Operations Superintendent, Supervisor or Manager.

## **7.0 RECORDKEEPING**

Process safety information will be maintained in the local RMP/PSM program that will be located in the control rooms. Piping and instrument diagrams (P&ID's) will also be maintained through the automated drafting system.

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## **7.1 Procedure**

### **7.1.1 Hazards Associated With The Highly Hazardous Chemical**

Information pertaining to the hazards of the highly hazardous chemical in the process must, at a minimum, contain the following:

- Chemical toxicity;
- Physical data;
- Corrosive data;
- Hazardous effects of inadvertent mixing of different materials;
- Permissible exposure limits (PEL);
- Reactivity data; and
- Thermal and chemical stability data.

**Note:** MSDS meeting the requirements of 29 CFR 1910.1200(g) may be used to comply with these requirements to the extent it contains information required.

### **7.1.2 The Process Technology**

Information pertaining to the technology of the process must, at a minimum, include the following:

- Process flow or block flow diagram;
- Maximum intended inventory;
- Process chemistry;
- Safe upper and lower limits for temperature, pressures and flows; and
- Evaluation of consequences of deviation, including those affecting employee safety and health.

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#### **7.1.3 The Process Equipment**

Information pertaining to the equipment in the process must include the following:

- Piping and instrument diagrams (P&ID's);
- Materials of construction;
- Electrical classification;
- Relief system design and design basis;
- Ventilation system design;
- Design codes and standards employed;
- Material and energy balances for processes built after May 26, 1992
- Safety systems (e.g., interlocks, detection or suppression systems).

## **8.0 Process Hazard Analysis**

### **8.1 General**

Global Water Resources will conduct a Process Hazard Analysis (PHA) to identify, evaluate and control the risks associated with the subject chemical process hazards or release scenarios at all treatment facilities subject to OSHA PSM and/or EPA RMP regulations. The overall purpose of the PHA will be to prevent or minimize the effects of a chemical release. Whenever necessary, recommendations will be made during the PHA to reduce the risk associated with a hazard or release scenario to an acceptable level.

### **8.2 Requirements**

- The RMP/PSM Program Manager will initiate planning and coordinate the process hazard analysis. This includes procuring any necessary consulting services, managing the work, notifying the Operations Manager of the schedule, and recordkeeping.
- The Operations Manager will commit the necessary operations and maintenance personnel to the PHA. The Operations Manager is responsible for ensuring that all action items and recommendations are assigned, resolved and documented.



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- The PHA will be performed by a team with expertise in engineering and process operations. The team shall include at least one employee experienced in the process being evaluated. One member of the team must be knowledgeable in the specific process hazard analysis methodology being used.
  
- Global Water Resources will establish a system to promptly address the team's findings and recommendations; assure that recommendations are resolved in a timely manner; document the resolutions; document what actions are taken; complete actions as soon as possible; develop a written schedule of actions to be completed; and communicate the actions to operating, maintenance and other employees whose work may be affected by the recommendations or actions.
  
- The PHA must be re-evaluated and updated by a team every five (5) years to ensure that the PHA is consistent with the current process.

#### **8.4 Procedures**

Global Water Resources will use one or more of the following methodologies to determine and evaluate the hazards of the process being analyzed:

- What-If;
- Checklist;
- What-If/Checklist;
- Hazard and Operability Study (HAZOP);
- Failure Mode and Effects Analysis (FMEA);
- Fault Tree Analysis; or
- An appropriate equivalent methodology.

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The process hazard analysis shall address:

- The hazards of the process;
- The identification of any previous incident which had a likely potential for catastrophic consequences in the workplace;
- Engineering and administrative controls applicable to the hazards (detection methods);
- Consequences of failure of engineering and administrative controls;
- Facility siting;
- Human factors; and
- A qualitative evaluation of a range of the possible safety and health effects of failure of controls on employees in the workplace.

## **8.5 Recordkeeping**

Global Water Resources will retain process hazard analysis and updates for each process subject to PSM/RMP for the life of the process (see [What If](#) analysis).

## **9.0 Operating Procedures**

### **9.1 General**

The purpose of this procedure is to ensure that Global Water Resources maintains up-to-date, accurate written operating procedures that provide clear instructions for safely conducting activities involved in the chemical process.

### **9.2 Requirements**

- Operating procedures are required for all stages of system operation. This procedure outlines the content, generation, modification and annual review/certification of the operating procedures.
- The Operations Manager, Superintendent or Supervisor has overall responsibility for implementing this procedure and ensuring operators and maintenance personnel have routine access to all operating procedures. Operating procedures will be readily accessible to employees who work in or maintain a process.

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## **9.3 Procedure**

### **9.3.1 Contents**

All procedures written to comply with the RMP/PSM standards should address the following elements

Steps for each operating phase:

- Initial startup;
- Normal operations;
- Temporary operations;
- Emergency shutdown including conditions under which emergency shutdown is required and the assignment of shutdown responsibility to qualified operators to ensure the emergency shutdown is executed in a safe and timely manner;
- Emergency operations;
- Normal shutdown; and
- Startup following a turnaround or after an emergency shutdown.

Operating limits:

- Consequences of deviation; and
- Steps required correcting or avoiding deviation.

Safety and health considerations:

- Properties and hazards of process chemicals;
- Precautions necessary to prevent exposure (engineering controls, administrative controls, personal protective equipment);
- Control measures to be taken if exposure occurs;
- Quality control for raw materials and control of hazardous chemical inventory levels;
- Any special or unique hazards; and
- Safety systems and their functions.

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#### **9.3.2 Safe Work Practices**

Global Water Resources will develop and maintain safe work practices to provide for the control of hazards during operations such as:

- Lockout/tag-out;
- Confined space entry;
- Opening process equipment or piping; and
- Control over entrance into a facility by maintenance, contractor, laboratory or other support personnel.

Please refer to other Standard Operating Procedures for Global Water Resources. These safe work practices apply to employees and contractor employees.

#### **9.3.3 Annual Review And Certification Of Procedures**

The Operations Manager, Superintendent or Supervisor and, at least, one senior operator knowledgeable about the process will review at least every three years all operating procedures. Necessary revisions will be documented and approved by the Operations Manager. A report of the findings of the audit shall be prepared and the two most recent compliance audits must be retained.

After completing the review and making any necessary revisions, the Operations Manager, Superintendent or Supervisor will certify each operating procedure as accurate and reflective of current operating practice.

Operating procedures must also be updated and re-certified following any process changes in accordance with the [Management of Change](#) procedure. Changes that may require updating of operating procedures include the following:

- Changes in process technology;
- Equipment changes; and
- Facilities changes

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#### **9.3.4 Recordkeeping**

Operating procedures, along with their current annual certification documentation, will be maintained in the operator's control rooms.

#### **10.0 Training**

##### **10.1 General**

Personnel working on or near the chemical process will be adequately trained and understand the inherent process hazards and appropriate response to an accidental chemical release.

##### **10.2 Requirements**

The following personnel are responsible for the development, review, and updating of training programs for the areas specified in the table below:

<b>Training Requirements</b>	<b>Responsible Individuals</b>
RMP/PSM regulated process overview	Operational Risk Manager/Specialist/Training Specialist
Safe Work Practices	Operational Risk Training Specialist
Operating Procedures	Operations Manager/ Superintendent/Supervisor
Maintenance/Preventive Maintenance	Maintenance Services Supervisor/ Operations Manager/Superintendent/ Supervisor

##### **10.3 Procedure**

###### **10.3.1 Method Of Instruction**

Employees required to be trained on the subjects listed in the table above may receive this training in a classroom environment, by hands-on training, or a combination of both methods. All safety related training will be conducted by the Operational Management Department. Other required training will be conducted by individuals experienced, skilled and knowledgeable in the subject being taught.

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Instructors are responsible for evaluating the employee's understanding of the materials presented during the training. This may be accomplished through the administration of an oral or written quiz or by the demonstration of a particular skill.

Outside parties such as chemical vendors, PPE vendors, consultants, or other training sources may provide portions of the required training.

#### **10.3.2 Initial Training**

Each new employee, before being allowed unsupervised involvement in the operation or maintenance of the chemical process, will be trained in an overview of the process and in the operating procedures applicable to their job task. Initial training shall also be conducted on the specific safety and health hazards, emergency operations and safe work practices pertinent to the employee's job tasks.

#### **10.3.3 Refresher Training**

Refresher training that assures the employee understands and adheres to the current operating procedures of the process will be accomplished at least every three years or more often if necessary. During this refresher training, employees will again be instructed on the specific safety and health hazards of the process.

#### **10.3.4 Management Of Change**

Whenever a change is made to the chemical process that affects operating procedures, safety requirements, or presents new hazards, employees will receive training regarding the changes and the effects of the changes on their job tasks.

### **11.0 Recordkeeping**

Global Water Resources shall ascertain that each employee involved in operating or maintaining the chemical process has received and understood the training. Training documentation must include the following information:

- Employee name;
- Topic of training;
- Date of training;
- Method of proficiency testing and records if written testing is utilized; and
- Employee signature or initials certifying understanding of training.

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All Operational Risk related training records will be maintained within the Operational Risk department and included in the Operational Risk training database. Supervisors will maintain documentation of all other RMP/PSM required employee training.

## **12.0 Contractor Safety**

### **12.1 General**

- Only contractors with safe work histories and company safety and health programs will be selected to perform work on or around the subject chemical process.
- This procedure covers the evaluation of contractor's safety and health information before selection and evaluation of contractor's safety performance while working at the facility. This procedure is specific to those contractors who perform work (e.g., maintenance or repair, renovation or specialty work) on or around the subject chemical process.
- This procedure does not apply to contractors providing incidental services with no effect on process safety, including janitorial work, delivery or other supply services.

## **13.0 Requirements**

The manager is responsible for contractor qualification, which includes verifying the receipt of all required contractor safety information. Any concerns resulting from the contractor safety evaluation should be resolved with the Operational Manager or Project Manager. A review of the following may be required:

- Description of the contractor's safety program;
- Description of the contractor's training program;
- Insurance loss run analysis reports;
- Workers' Compensation rating; and
- [OSHA 300](#) Log for the past three years.

If the contractor's safety information is found complete and is considered approved, they may be awarded a contract. Once a contract is awarded, the contractor will be informed by the project manager that periodic evaluations of the contractor's safety performance will be conducted while working at the facility to ensure all facility safe work practices are being followed.

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In addition, the contractor will be notified of the following responsibilities prior to initiating work at the facility:

- Contractor will inform the project manager whether the contractor's work presents any unique hazards and a description of the hazards; and
- Contractor must inform the project manager of all contract employee injuries or illnesses resulting from work performed on or around the chemical process. Immediate notification is required in the event of any serious injuries resulting from work at the facility.

### **13.1 Contractor Training**

Prior to work commencement, the project manager will ensure that critical safety information is being communicated to the contractor's employees working on-site. Refer to Appendix B for a form to be used for Contractor Safety Review. The following information shall be provided and reviewed:

- Overview of Global Water Resources Safety Rules;
- Access control procedures;
- Global Water Resources Hazard Communication Program, including the MSDS for the subject chemical;
- Relevant Emergency Action Plan information, including procedures, alarms, designated assembly areas, etc.
- Safe work practices that may be necessary to perform the work (e.g., lockout/tag-out, confined space entry and line opening procedures); and
- Description of the subject chemical process and associated hazards.

### **13.2 Contractor Access Control Procedure**

All contractor employees must sign in and sign out daily on the log maintained at each treatment facility. Contractor employees are restricted from entering chemical process areas unless access is required to perform their work. Refer to Appendix C for a Contractor's/Visitor's log form.



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#### **13.3 Contractor Injury And Illness Log**

The contractor must inform the project manager of all contractor employee injuries or illnesses resulting from work performed on or around the subject chemical process. The project manager should notify the Operational Manager who will maintain a log of contractor injuries or illnesses.

The Operational Management Department will regularly review the logs of contractor injury or illness. If the review indicates a contractor has a history of incidents, the project manager will be consulted to jointly develop any necessary corrective actions the contract employer must implement in order to perform future work at the facility. Corrective actions may include suspending the contractor from working at the facility.

#### **13.4 Recordkeeping**

Documentation required by this procedure and the personnel responsible for maintaining the documentation is listed below:

<b>Document</b>	<b>Custodian</b>
Contractor employee training records	Project Manager
Contractor employer safety evaluation reports	Project Manager
Contractor sign-in/sign-out log	Operations Manager, Superintendent or Supervisor
Contractor employee injury and illness logs	Operational Management Department

#### **14.0 Management Of Change**

##### **14.1 General**

- The purpose of the Management of Change (MOC) procedure ensures that chemical feed process changes are properly reviewed against original system design specifications and can be accomplished safely, and that the systems are ready to operate safely in accordance with original system design intent following the implementation of the change.
- A management of change review will be completed for any temporary or permanent change, other than replacement in kind, that affects the subject chemical process. This requirement applies to all capital improvements and all maintenance activity.

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- “Change” is defined as all modifications to raw materials, process technology (i.e., processing conditions), facility (i.e., building, fire protection, services, etc.), equipment (i.e., chlorinators, evaporators, piping, valves, etc.) and procedures.

#### **14.2 Requirements**

All operators and maintenance personnel are responsible for understanding what a “change” is, and shall not make a change to the chemical system without first implementing this MOC procedure.

If production operations or maintenance personnel are uncertain if a replacement is a change, they must consult with the Operations Manager, Superintendent or Supervisor for instruction before proceeding.

The Operations Manager, Superintendent or Supervisor will be responsible for the following:

- Completing the Management of Change forms;
- Evaluating if a proposed change deviates from original design specifications and determining whether it is a change;
- Procuring replacement parts which are the same manufacturer and model number as the original equipment or thoroughly reviewing substitutes to ensure that they comply with the original design specifications and design intent;
- Arranging for a process hazard analysis (PHA) review of the change, if necessary;
- Authorizing changes and system startup following the change; and
- Maintaining all required documentation for this procedure.

In the event of a change instituted by a project manager, the project manager will be the responsible party.

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#### **14.3 Procedure**

##### **14.3.1 Management Of Change Forms**

The [Management of Change](#) form must be completed by the

Operations Manager, Superintendent or Supervisor or the Project Manager prior to implementing any change to the chemical process. The following items must be addressed and documented prior to making any changes:

- The technical basis for the proposed change;
- The impact of the change on safety and health to employees at the plant;
- Modifications needed to the operating procedures due to the planned change;
- The necessary time period for making the change; and
- Authorization required for the proposed change.

The completed Management of Change form must be reviewed by the Operational Management Department and approved by the Operations Manager.

The Operations Manager, Superintendent or Supervisor will ensure that all operators and maintenance employees have been trained in the operations of the system as revised prior to the startup of that system.

The Operations Manager, Superintendent or Supervisor or Project Manager must authorize start-up after implementation of the change. If the change requires process safety information to be updated, a Pre-startup Safety Review must be completed and documented prior to providing the authorization for start-up.

##### **14.3.2 Process Hazard Analysis**

If the Operations Manager, Superintendent, Supervisor or Project Manager believes a proposed change significantly affects overall process safety or the results of any previously conducted hazard analysis updated in accordance with Process Hazard Analysis procedures.

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Examples of changes that could significantly affect process safety include the following:

- Increasing chlorine storage capacity;
- Modifying piping and valve arrangements that can affect how the chlorine system can be blocked in, bypassed or vented in an emergency;
- Changing materials of construction or applying a specification different from the original specifications;
- Modifying control logic, set points (outside of approved ranges or design limits), interlocks or alarm points;
- Changing process conditions (i.e., flow, temperature, pressure outside of previous normal operating range);
- Facility changes that would locate fire or impact hazards closer to the chemical process, affect personnel's exposure to chemical releases, or affect the ability to evacuate in the event of an emergency; and
- Any other changes that may result in a new hazard or adversely affect existing safety systems.

The hazard analysis will be updated to identify potential hazards prior to implementing the change so that risk reduction options and recommendations can be evaluated. All hazard analysis recommendations will then be addressed prior to providing authorization to proceed with the proposed change.

Updating the hazard analysis will require re-submittal of the Risk Management Program.

#### **14.3.3 Re-Submitting EPA RMP Hazard Assessment And Risk Management Program**

The Risk Management Plan must be revised, updated and resubmitted to the EPA within six months of any change that requires process hazard analysis, the revision of the offsite Consequence Analysis, or the EPA EMP Prevention Program.

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#### **14.3.4 Management Of Change Training**

The following employees will receive training regarding Management of Change procedures as part of initial classroom training on the RMP/PSM programs:

- Operations Manager;
- Operations Superintendent;
- Operations Supervisor(s);
- Plant Operators;
- Maintenance Services Supervisor(s); and
- Maintenance Service Employees

#### **14.4 Recordkeeping**

A copy of any Management of Change forms and associated documentation will be maintained by the Operations Manager, Superintendent, or Supervisor and the Operational Management Department.

#### **15.0 Pre-Start Up Safety Review**

##### **15.1 General**

- Pre-startup safety review ensures that the facility is ready to safely operate new and modified chemical processes. This review will be performed for new chemical processes and modified existing chemical processes when the modification is significant enough to require a change in the process safety information, including changes in chemical hazards, process technology and process equipment.
  - Pre-startup safety reviews will be performed in conjunction with the Management of Change procedure for major modifications to the chemical process at the facility. A major modification is defined as a modification that requires a change in the process safety information.
- In addition, pre-startup safety reviews will be performed for all new processes regulated under OSHA Process Safety Management and EPA Risk Management Program.

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## **15.2 Requirements**

The Operations Manager, Superintendent or Supervisor will be responsible for administering the Pre-startup Safety Review (PSSR) program and ensuring PSSR's are completed and documented whenever required.

## **15.3 Procedure**

### **15.3.1 Pre-Startup Safety Review Forms**

Prior to introducing a subject chemical into a new or modified process, a Pre-Startup Review (PSRR) will be performed and thoroughly documented. During the PSSR, the following items shall be confirmed and documented using the [Pre-Startup Safety Review Checklist](#).

- Construction and equipment are in conformance with original design specifications;
- Applicable safety, operating, maintenance and emergency procedures are available or have been updated;
- For modified processes, Management of Change procedures have been followed;
- For new processes, a Process Hazard Analysis has been performed and all recommendations resolved; and
- Training of employees involved in the operations and/or maintenance of the chemical process has been completed and documented.

In addition to the above items, the Pre-Startup Safety Review may also include a review of general safety provisions, including adequacy of fire protection systems, adequacy and location of safety equipment, adequacy of ventilation and lighting and review of areas electrical classification.

Any deficiencies noted during the Pre-Startup Safety Review should be documented and associated corrective actions identified. All corrective actions should be assigned by the Operations Manager, Superintendent or Supervisor to appropriate staff such as operations or maintenance personnel for follow-up.

All corrective actions must be resolved and documented to complete the PSSR. Final approval of the Operations Manager,

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Superintendent or Supervisor is required to prior to startup and operation of the new or modified chemical feed process.

#### **15.3.2 Pre-Startup Safety Review Training**

All production supervisors, operators and maintenance personnel will receive training regarding Pre-Startup Safety Review procedures as part of initial RMP/PSM Program classroom training.

#### **15.4 Recordkeeping**

Required documentation will consist of the completed [Pre-Startup Safety Review Checklist](#) for each new chemical process or system modification requiring a PSSR. Completed PSSR forms and associated documentation will be maintained in the R&S file at the Central Plant for the life of the process.

#### **16.0 Mechanical Integrity**

##### **16.1 General**

- Mechanical integrity ensures the continued integrity of chlorine process equipment. An effective mechanical integrity program is integral to preventing accidental chemical releases that may result from mechanical failure of improperly maintained equipment.
- The elements of the mechanical integrity program for the chemical process include the following:
  1. Identification of critical equipment and instrumentation;
  2. Written maintenance, testing and inspection schedules and procedures;
  3. Maintenance personnel training;
  4. Maintenance documentation;
  5. Correction of equipment deficiencies; and
  6. Quality assurance of new equipment
- The Operations Manager, Superintendent, or Supervisor has overall responsibility for implementing the mechanical integrity program at each treatment plant.

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## **16.2 Procedure**

### **16.2.1 Identification Of Critical Equipment**

The first step of an effective mechanical integrity program is to compile a list of process equipment and instrumentation for inclusion in the program. This list must include the following:

- Pressure vessels and storage tanks;
- Process piping;
- Relief and vent systems and devices;
- Emergency shutdown systems and alarms; and
- Controls (including monitoring devices and sensors, alarms and interlocks).

### **16.2.2 Written Maintenance, Testing And Inspection Schedules And Procedures**

Written maintenance, inspection and testing procedures will be developed and kept up-to-date for all critical equipment, including the step-by-step procedures required to perform the maintenance task and the frequency for performing the task. Maintenance procedures and schedules will be based on past operating experience, general industry practices, and/or manufacturer recommendations.

### **16.2.3 Maintenance Personnel Training**

A majority of maintenance-related training consists of on-the-job training and working in conjunction with experienced mechanics.

All maintenance personnel will receive initial classroom training as part of the RMP/PSM Program. Maintenance personnel may also be given additional training specific to maintaining process equipment by outside parties (e.g., equipment manufacturers, etc.).

### **16.2.4 Equipment Deficiencies**

Global Water Resources will correct deficiencies in equipment that are outside acceptable limits of the RMP/PSM written program before further use or in a safe and timely manner when necessary means are taken to assure safe operation.



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#### **16.2.5 Quality Assurance**

The Operations Manager, Superintendent, or Supervisor will control quality assurance for spare parts and replacement equipment at their respective locations. All process equipment shall only be purchased from approved vendors and must be certified for that chemical use. Only parts that meet the specifications contained on the process drawings and in the equipment files (i.e., for piping, hoses and valves) and manufacturer recommendations shall be used. All maintenance personnel are responsible for verifying replacement part numbers, ratings and materials of construction against manufacturer procedures and equipment specifications. The replacement part, manufacturer and/or specifications cannot be substituted without approval by the Operations Manager, Maintenance Supervisor or Operations Superintendent who is required to evaluate whether any suggested change of an equipment part or manufacturer still satisfies the original equipment specifications and does not constitute a change under the management of Change (MOC) procedure. Any suggested substitution that constitutes a change will first be subject to the MOC procedure.

For new construction projects, the facility must ensure that equipment, as it is fabricated, is acceptable for the chemical process. This includes a review of acceptable operating ranges (e.g., pressure, temperature, etc.), materials of construction, and any applicable codes or standards. Only knowledgeable persons shall approve design drawings and inspect equipment installations before connecting to the chemical process. Appropriate checks and inspections shall be performed to assure that equipment is installed properly and is consistent with design specifications, the manufacturer's instructions and recommended standards published by the applicable standards.

#### **16.3 Recordkeeping**

The records shall be maintained to document corrective maintenance work on process equipment and maintain a record of all corrective action taken.

Maintenance records shall include the following, as applicable:

- Equipment name and identifier, such as serial number;
- Date and description of maintenance activity;
- Name of person performing maintenance activity;
- Description of the procedure, inspection or test performed;
- Results of maintenance activity; and
- Summary of actions required to correct any deficiencies.

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## **17.0 Non-Routine Work Authorizations**

### **17.1 General**

- Non-Routine Work Authorizations ensure that safe work practices are utilized for any non-routine work conducted in or around the process areas.
  
- Global Water Resources employees, contractor employees and visitors must adhere to all company safety rules and procedures. The specific safe work practices that may be utilized in non-routine work in or around the chemical process areas include the following:
  1. Hot Work Permit;
  2. Lockout/Tag-out;
  3. Process equipment line opening procedures;
  4. Plant security – sign in/sign out; and
  5. Confined space entry.

#### **17.1.1 Hot Work Permit**

Operations that require employees and/or contractors to weld, grind or use other open flame or spark-producing devices on, in, or around chemical process equipment require the completion and authorization of a hot work permit prior to conducting hot work activities.

#### **17.1.2 Lockout/Tag-out**

To prevent the uncontrolled release of hazardous energy (i.e., electrical energy, chlorine under pressure, air, water) or the unexpected start-up of equipment, lockout/tag-out procedures must be followed.

#### **17.1.3 Safe Opening Procedure – Chemical Process Piping**

In order to safely perform essential maintenance on the chemical system where it is necessary to disconnect or open certain pipelines or appurtenances to the chemical process equipment, maintenance personnel must adhere to established procedures for opening or disconnecting chemical piping. Line opening procedures are located at the end of this section.

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#### **17.1.4 Sign In/Sign Out Procedures**

For the protection of plant personnel and property, and to safeguard the public, it is necessary for certain individuals to report their presence on company property.

At all times, individuals who are not employees of Global Water Resources must report their presence by signing in and out on a [Contractor/Visitor Log](#).

#### **17.1.5 Confined Space Entry Procedures**

A Confined Space Entry Program has been developed to ensure the safety of Global Water Resources employees when entering a confined space. By following the guidelines outlined in the program, employees can perform their duties in a confined space with a minimal chance of injury.

#### **17.2 Recordkeeping**

Training documentation related to safe work practices will be maintained by the Operational Management Department. All required permits shall be maintained by the immediate supervisor until hot work is completed.

### **18.0 Incident Investigation**

#### **18.1 General**

- Global Water Resources investigates each incident that resulted in, or could have reasonably resulted in, a catastrophic release of a regulated substance in the workplace. The purpose of the investigation procedure is to identify causes of an incident and to implement corrective actions.
- The incident investigation procedure covers all regulated chemical processes at each treatment facility. This procedure applies to all incidents that result in or, could have reasonably resulted in, a catastrophic chemical release.
- This procedure does not replace Global Water Resources chemical spill/release reporting procedures that must be followed for all chemical releases (See Emergency Action Plan).

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- The Operating Manager, Superintendent, or Supervisor is responsible for initiating the incident investigation procedure and ensuring that any resulting corrective actions are addressed and documented.

## **18.2 Procedure**

Following an incident that resulted in, or could have reasonably resulted in, a catastrophic release of a regulated substance, and all proper notifications have been made with the site being secured and safe, the Operations Manager, Superintendent, or Supervisor shall establish an incident investigation team to investigate the incident as soon as possible and no later than 48 hours after the incident. The team shall consist of the following:

- Operations Manager, Superintendent, or Supervisor;
- Operational Risk Manager or Specialist; and
- Operator and/or Maintenance employee

In addition, contract workers shall be included on the incident investigation team whenever the incident involves the contractor. Other individuals with appropriate knowledge may participate if required to thoroughly investigate an incident.

A report shall be prepared at the conclusion of the investigation and must include a minimum of the following:

- Date and time of incident;
- Date and time investigation began;
- Description of the incident;
- Factors that contributed to the incident; and
- Recommendations resulting from the investigation

It is the responsibility of the Operations Manager to ensure that all recommendations in the incident investigation are properly resolved and documented. If a recommendation is not implemented, a written explanation of its exclusion must be documented. The incident investigation report will not be considered complete until all recommendations are resolved and documented.

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The intent of this type of incident investigation is to correct deficiencies in procedures, training, human error, managerial or other deficiencies. Other or expanded investigations may be required to ascertain human error and any required disciplinary action.

### **18.3 Communication**

Operations Manager, Superintendent, or Supervisor will review the investigation with all affected personnel, whose job tasks are relevant to the investigation findings, including contract employees if applicable. Review must be documented.

### **18.4 Recordkeeping**

Retain incident investigation reports for a minimum of five years

## **19.0 Emergency Planning And Response**

### **19.1 General**

- The Company handles a variety of hazardous chemicals in the course of doing business. Some of the chemicals such as chlorine, anhydrous ammonia and sulfur dioxide, are regulated by OSHA under the Process Safety Standard (29 CFR 1910.119) and the EPA's Risk Management Program (40 CFR 68).
  
- Emergency Planning and Response ensures that Global Water Resources maintains an up-to-date and complete written Emergency Action Plan (EAP). A comprehensive emergency action plan combined with training and drills can effectively minimize the impact of an accident release by ensuring proper and quick facility response and/or evacuation.
  
- Emergency Action Plans are required for all facilities with OSHA Process Safety Management (PSM) and/or EPA Risk Management Program (RMP) regulated processes in accordance with 29 CFR 1910.38(a).
  
- This procedure outlines provision for updating and maintaining the existing Emergency Action Plan and the information contained within relative to chemical emergency evacuation activities.

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- In addition, the Emergency Action Plan shall include procedures for handling small releases.

- The Operational Risk Department will be responsible for Emergency

Action Plan reviews and updates. Any significant changes to the Emergency Action Plan shall be reviewed and approved by the RMP/PSM Program Manager.

- The Operations Manager, Superintendent, or Supervisor will coordinate emergency drills involving outside emergency response agencies such as local Municipal Fire Departments, Police authorities, Hazardous Material Response teams, local Emergency Planning Committee, local Emergency Medical Services agencies and the local Emergency Service Disaster Agency Coordinator.

- Supervisors shall review the Emergency Action Plan with their employees on an annual basis. This training must be documented and the documentation forwarded to the Operational Management Department.

## **19.2 Procedure**

### **19.2.1 Updating And Maintaining The Emergency Action Plan**

The Operations Manager, Superintendent, or Supervisor shall, on an annual basis, review the EAP to ensure that it is current and complies with OSHA PSM and EPA RMP regulations. Revisions to the EAP will be considered under any of the following conditions:

- Annually;
- When facilities are renovated or modified;
- When there are major personnel or organizational changes or the employees' responsibilities or designated action under any section of this plan change;
- When there are process changes or new hazardous materials utilized; or
- When necessary changes are identified by drills or actual emergencies.

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#### **19.2.2 Emergency Action Plan Training**

The Operational Training Specialist will conduct Hazardous Materials Awareness level training to all plant employees and employees whose duties require them to visit or work in the plants.

All supervisors will provide EAP training to their employees within 30 days of hire and forward a training report or memo to the Operational Training Specialist to document such training. The supervisor or Operational Training Specialist will accomplish training on any revisions to the EAP.

#### **19.2.3 Location Of Emergency Action Plans**

A copy of the Emergency Action Plan will be kept in all facilities in a location accessible by all employees.

#### **19.2.4 Recordkeeping**

Emergency Action Plan training documentation will be maintained by the Operational Management Department. Emergency Action Plan training records must include the following information:

- Employee's name;
- Topic of training;
- Date of training;
- Proficiency of understanding records – tests, critiques, demonstration of knowledge or other;
- Employee's signature certifying understanding of training; and
- References and aids used to conduct the training.

### **20.0 Compliance Audits**

#### **20.1 General**

• Compliance audits evaluate Global Water Resources regulated chemical process safety and risk management programs for compliance with the OSHA PSM and EPA RMP regulations. Whenever necessary, the audit will identify recommendations to address program deficiencies.

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- This procedure constitutes Global Water Resources plan for conducting OSHA PSM and EPA RMP compliance audits for the regulated chemical process. The compliance audits will evaluate each PSM and RMP element and determine if established program procedures satisfy regulatory requirements and if they are being followed at the facility. Corrective actions to address any identified deficiencies will be developed and implemented.
- The Operational Manager is responsible for ensuring that audits are completed and documented for the regulated chemical process at least once every three years. The Operational Manager will assemble an audit team consisting of personnel knowledgeable in the chemical process.

## **20.2 Procedure**

The compliance audit team will include the following personnel (alternately, a qualified consultant may perform the audit):

- Operational Manager; and he/her designee
- At least one member knowledgeable in the process to walk through and inspect the production area.

The audit will include a review of the facility's written RMP/PSM program and supporting documentation, interviews of personnel, and a walkthrough and inspection of the chemical process area. The audit will be conducted following current OSHA PSM and EPA RMP guidelines and standards. All items determined to be deficient will be listed as a finding in the audit report.

After the audit team has reviewed all pertinent records, interviewed necessary personnel, and conducted a process area walk-through, the team will assemble to review notes. The audit team will review all items considered deficient (i.e., findings) and identify the reason for the deficiency. The team will also discuss possible corrective actions. All identified corrective actions should be assigned to the appropriate individuals. The audit leader will then prepare an audit report documenting all findings, recommended corrective actions, assigned personnel, and target corrective action evaluation dates.

It will be the responsibility of the individuals listed in Section 5.1 to ensure all audit corrective actions are resolved/implemented in a timely manner and the resolution thoroughly documented. Whenever a corrective action is not implemented, a written explanation will be prepared explaining why the action is inappropriate or no longer applicable. In cases where the identified action is considered inappropriate, a suitable alternate action that corrects the deficiency must be identified and documented.



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#### **20.3 Recordkeeping**

The RMP/PSM Program Manager will retain a copy of at least the two (2) of the most recent compliance audit reports for the facility and documentation summarizing the resolution of all corrective actions from the audits. In accordance with the employee participation provisions of the program, the compliance audit reports will be made available for review by facility employees. An example of a form used for the compliance audit is attached as Appendix F.

#### **21.0 RMP Submission**

##### **21.1 General**

- Under 40 CFR 68.150 (EPA RMP standard), Global Water Resources is required to submit a single Risk Management Plan for all covered chemical processes. The RMP should be submitted in the method and format specified by the EPA as of the date of the submission.
  
- This procedure constitutes Global Water Resources plan for RMP submission. All facilities with chemical processes covered by RMP shall comply. Most Global Water Resources facilities will fall under Program 3 eligibility requirements.
  
- The local Operational Manager or Operational Specialist shall compile and submit the RMP to the EPA.

##### **21.2 Procedures For Submission**

The first RMP shall be submitted to the EPA no later than the latest of the following dates:

- Three years after the date on which a regulated substance is first listed under the EPA's list of regulated toxic and flammable substances (40 CFR 68.130); or
- The date on which a regulated substance is first present above a threshold quantity in a process.

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A Program 3 RMP submission must contain a description of the following elements of the facility's written RMP:

- Executive Summary;
- Registration;
- Offsite Consequence Analysis;
- Five-Year Accident History;
- Prevention Program;
- Emergency Response Program; and
- Certification.

## **21.2.1 Executive Summary**

An executive summary shall be included in the RMP that includes a brief description of the following:

- The accidental release prevention and emergency response policies at the facility;
- The facility name and regulated substances handled;
- The general accidental release prevention program and chemical-specific prevention steps;
- The five-year accident history;
- The emergency response program; and
- Planned changes to improve safety.

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### 21.2.2 Registration

A single registration form shall be included in the RMP. The form should cover all regulated substances handled in the covered processes.

The registration must include the following data:

- Facility name, street, city, county, state, zip code, latitude and longitude, method for obtaining latitude and longitude, and description of location that latitude and longitude represent;
- The facility's Dun & Bradstreet number;
- Name and Dun & Bradstreet number for the corporate parent company;
- The name, telephone number and mailing address of the owner or operator;
- The name, e-mail address, and title of person with overall responsibility for RMP elements and implementation;
- The name, title, telephone number, 24-hour telephone number, and e-mail address of emergency contact person;
- The name and CAS number of each regulated substance held above the threshold quantity in the process, the maximum quantity of each regulated substance in the process (in pounds) to two digits, the five or six digit NAICS code that most closely corresponds to the process and the program level of the process;
- The facility IPA identifier;
- The number of full-time employees at the site;
- Whether the facility is subject to 29 CFR 1910.119 (OSHA's PSM);
- Whether the facility is subject to 40 CFR 355;
- If the facility has a CAA Title V operating permit, the permit number;
- The date of the last safety inspection at the facility by a Federal, state, or local government agency and the identity of the inspecting entity;
- The name, mailing address and telephone number of the contractor who prepared the RMP (if any);
- Source or parent company e-mail address (optional);
- Source homepage address (optional);

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- Phone number at the source for public inquiries (optional);
- Local Emergency Planning Committee (optional);
- OSHA Voluntary protection Program status (optional);
- The type of and reason for any changes being made to a previously submitted RMP.

#### **21.2.3 Offsite Consequence Analysis**

In the Offsite Consequence Analysis for Program 3 processes, Global Water Resources must present one worst-case release scenario to represent all regulated toxic substances held above the threshold quantity and one worst-case release scenario to represent all regulated flammable substances held above the threshold quantity. Please refer to 40 CFR §68.22 and 40 CFR §68.25 for offsite consequence and worst-case scenario parameters.

The scenario shall include the following data:

- Chemical name;
- Percentage weight of the chemical in a liquid mixture (toxics only);
- Physical state (toxics only);
- Basis of results (give model name if used);
- Scenario (explosion, fire toxic gas release, or liquid spill and evaporation);
- Quantity released in pounds;
- Release rate;
- Release duration;
- Wind speed and atmospheric stability class (toxic only);
- Topography (toxics only);
- Distance to endpoint;
- Public and environmental receptors within the distance;
- Passive mitigation considered; and
- Active mitigation considered (alternative release only).

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#### **21.2.4 Five-Year Accident History**

The five-year accident history section shall describe all accidental releases from covered processes that resulted in deaths, injuries or significant property damage on site, or known offsite deaths, injuries, evacuation, sheltering in place, property damage, or environmental damage. The required data is as follows:

- Date, time and approximate duration of the release;
- Chemical released;
- Estimated quantity released in pounds;
- Five or six digit NAICS code that most closely corresponds to the process;
- The type of release event and its source;
- Weather conditions, if known;
- On-site impacts;
- Known offsite impacts;
- Initiating event and contributing factors, if known;
- Whether offsite responders were notified, if known; and
- Operational or process changes that resulted from investigation of the release.

#### **21.2.5 Prevention Program**

For each Program 3 process, the following information regarding the prevention program must be provided:

- The five or six digit NAICS code for the facility;
- Name of regulated substance;
- Date on which the safety information was last reviewed or revised;
- Date of completion of most recent process hazard analysis (PHA) and technique used;
- Expected date of completion of any changes resulting from the PHA;
- Major hazards identified;
- Process controls in use;
- Mitigation systems in use;

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- Monitoring and detection systems in use;
- Changes since last PHA;
- Date of most recent review or revision of operating procedures;
- Date of most review or revision of training programs;
- Type of training provided – classroom, on the job;
- Type of competency testing used;
- Date of most recent review or revision of maintenance procedures and date of most recent equipment inspection or test and the equipment inspected or tested;
- Date of most recent change that triggered management of change (MOC) procedures and date of most recent review or revision of MOC procedures;
- Date of most recent pre-startup review;
- Date of most recent compliance audit and expected date of completion of any changes resulting from the compliance audit;
- Date of most recent incident investigation and expected date of completion of any changes resulting from the incident investigation;
- Date of most recent review or revision of employee participation plans;
- Date of most recent review or revision of hot work permit procedures;
- Date of most recent review or revision of contractor safety procedures;
- Date of most recent evaluation of contractor safety performance.

### **21.3 Emergency Response Program**

In regards to the facility's emergency response program, the following information must be provided:

- Do you have a written emergency response plan?
- Does the plan include specific actions to be taken in response to an accidental release of a regulated substance?
- Does the plan include procedures for informing the public and local agencies responsible for responding to accidental releases?
- Does the plan include information on emergency health care?
- Date of most recent review or update of emergency response plan;
- Date of most recent emergency response training for employees;

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- Name and telephone number of local agency with which emergency response activities and emergency response plan is coordinated; and
- List of other Federal or State emergency plan requirements to which the facility is subject.

#### **21.3.1 Certification**

For Program 3 processes, Global Water Resources shall submit in the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete.

For Program 1 processes, please refer to 40 CFR §68.12(b)(4).

#### **21.3.2 Updates**

The RMP submission must review and revised under any of the following conditions:

- At least every five years from the date of the initial submission or most recent update, whichever is later. (For purposes of determining the date of initial submissions, RMP's submitted prior to June 21, 1999 are considered to have been submitted on that date);
- No later than three years after a newly regulated substance is first listed by the EPA;
- No later than the date on which a new regulated substance is first present in an already covered process above a threshold quantity;
- Within six months of a change that requires a revised PHA or hazard review;
- Within six months of a change that requires a revised offsite consequence analysis;
- Within six months of a change that alters the program level that applied to the covered process; and
- If a facility is no longer subject to RMP Submittal, the owner or operator shall submit a de-registration to the EPA within six months.

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**21.3.3 Required Corrections**

A corrected RMP must be submitted as follows:

- Within six months of the release or by the time the RMP is updated under
- 40 CFR §68.190 if there is any new accident history information for any accidental release meeting the five year accident history criteria; and
- Within one month of any change in emergency contact information.

**21.4 Recordkeeping**

Maintain all records pertaining to the RMP submission for a period of five years.

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## **RECORDKEEPING**

### **1.0 Purpose**

To document and retain injury and illnesses and accident investigations in accordance with regulations.

### **2.0 Scope**

This applies to all Global Water Resources operations.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility investigate all work related injuries and illnesses and to document injuries and illnesses as required by regulatory requirements.

#### **3.2 Operational Management**

The Operational Management Department is responsible for providing guidance to management on recordkeeping and accident investigations, participating in accident investigations as necessary and overseeing the compliance with injury and illness reporting for each location.

### **4.0 Recordkeeping Forms**

- Employers use the OSHA No. 300 log as their record of occupational injuries and illnesses.
- Employers may use OSHA No. 300A or an equivalent form as their supplementary record of occupational injuries and illnesses.
- Injuries and illnesses must be entered onto the log within 7 workdays after the employer has received information that an injury or illness has occurred.

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## **RECORDKEEPING**

### **5.0 Location, Retention, Posting And Maintenance Of Records**

- Establishment Requirements

1. The recordkeeping regulations define an establishment as a "single physical location where business is conducted or where services or industrial operations are performed". Each district location is considered as an establishment by OSHA definition.

2. Per regulations, treat distinctly separate activities performed at the same physical location (for example, contract construction activities operated from the same physical location as a water treatment plant) as a separate establishment for recordkeeping purposes.

- Location of Records

Keep injury and illness records (OSHA No. 300, and OSHA No. 300A) on-site at every fixed location where operations are performed.

For transient or temporary work sites, records can be maintained at a central location.

- Retention of OSHA records

Retain the log and summary (OSHA No. 300) and the supplementary record (OSHA No. 300A) at each district location for 5 calendar years following the end of the year to which they relate.

- Annual Posting Requirements

The completed OSHA 300A form must be posted in each workplace from February 1 to April 30 of each year.

- Maintenance of the log (OSHA No. 300)

1. Make new entries to OSHA No. 300 form under the below circumstances:

a. Previously unrecorded cases that are discovered.

b. Cases that initially weren't recorded but were found to be recordable after the end of the year in which the case occurred.

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2. Each district operation updates the OSHA No. 300 form on a calendar year basis. Include newly discovered cases in the update and reflect changes occurring in recorded cases after the end of the calendar year. If a change in the extent or outcome of an illness affects a previous entry made within the 5-year retention period, cross out the first entry and make a corrected entry in the log.
3. Refer to specific recordkeeping guidelines for additional guidance and requirements.

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## **RESPIRATORY PROTECTION**

### **1.0 Purpose**

It is the policy of Global Water Resources to provide its employees with a safe and healthful working environment. This includes protecting all employees from respiratory hazards within the work place. When feasible, this will be accomplished by using accepted engineering controls. In situations where this is not feasible, respiratory protection is provided to employees to reduce employee exposure to harmful airborne particulates or gases.

### **2.0 Scope**

This program applies to all Global Water Resources operations and employees who may be required to use respiratory protection. This respiratory protection program has been designed to meet the OSHA written program procedures and guidelines contained in OSHA 29 CFR 1910.134.

### **3.0 Responsibilities**

The Business Units Operational Management, will have responsibility and authority for implementation and administration of the respiratory protection program. All employees must follow these instructions.

Company management and supervisors have the responsibility to enforce this procedure and ensure proper respiratory protection is used by employees when performing certain tasks identified by this procedure.

### **4.0 Definition Of Terms**

**Air-Purifying Respirator** – a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

**Atmosphere-Supplying Respirator** – a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

**Canister Or Cartridge** – a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

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## RESPIRATORY PROTECTION

**Demand Respirator** – an atmosphere-supplying respirator that admits breathing air to the face piece only when a negative pressure is created inside the face piece by inhalation.

**Emergency Situation** – any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

**Employee Exposure** – exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

**End-Of-Service-Life Indicator (ESLI)** – a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

**Escape-Only Respirator** – a respirator intended to be used only for emergency exit.

**Filter Or Air-Purifying Element** – a component used in respirators to remove solid or liquid aerosols 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 Factor** – a quantitative estimate of the fit of a particular respirator to a specific individual and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

**Fit Test** – the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also qualitative fit test QLFT and quantitative fit test QNFT.)

**Helmet** – a rigid respiratory inlet covering that also provides head protection against impact and penetration.

**High Efficiency Particulate Air (HEPA) Filter** – a filter that is at least 99.97% efficient in removing mono-disperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

**Hood** – a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

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## **RESPIRATORY PROTECTION**

**Immediately Dangerous To Life Or Health (IDLH)** – an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual’s ability to escape from a dangerous atmosphere.

**Interior Structural Firefighting** – the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR §1910.155)

**Negative Pressure Respirator (Tight Fitting)** – a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.

**Oxygen Deficient Atmosphere** – an atmosphere with oxygen content below 19.5% by volume.

**Physician Or Other Licensed Health Care Professional (PLHCP)** – an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required.

**Positive Pressure Respirator** – a respirator in which the pressure inside the respirator face piece exceeds the ambient air pressure outside the respirator.

**Powered Air-Purifying Respirator (PAPR)** – an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Pressure Demand Respirator** – a positive pressure atmosphere-supplying respirator that admits breathing air to the face piece when the positive pressure is reduced inside the face piece by inhalation.

**Qualitative Fit Test (QLFT)** – a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual’s response to the test agent.

**Quantitative Fit Test (QNFT)** – an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Respiratory Inlet Covering** – that portion of a respirator that forms the protective barrier between the user’s respiratory tract and an air-purifying device or breathing air source or both. It may be a face piece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

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**Self-Contained Breathing Apparatus (SCBA)** – an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

**Service Life** – the period of time that a respirator, filter or absorbent, or other respiratory equipment provides adequate protection to the wearer.

**Supplied-Air Respirator (SAR) Or Airline Respirator** – an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

**Tight-Fitting Face piece** – a respiratory inlet covering that forms a complete seal with the face.

**User Seal Check** – an action conducted by the respirator user to determine if the respirator is properly seated to the face.

### **5.0 Respirator Selection**

The Operational Management Department will determine or advise management on the selection and use of respirators using outside consultation, manufacturer's assistance and guidelines from recognized authorities such as the National Institute of Occupational Safety and Health (NIOSH).

Only NIOSH certified respirators will be used. The respirators selected must be used in compliance with the conditions of its certification. The selection process is included as **Respiratory Selection for Routine Use of Respirators**.

Selection of the proper respirator to be used at any location or operation under the control of Global Water Resources will be based on the identification and evaluation of respiratory hazards.

This will include a reasonable estimate of the employee's exposure to the respiratory hazard and an identification of the contaminant's chemical state and physical form. Where Global Water Resources cannot identify or reasonably estimate the employee's exposure, the atmosphere shall be considered IDLH.

Respirator selection based on the specific atmospheric hazards that may exist within Global Water Resources work areas are listed for each district in **Respiratory Selection for Routine Use of Respirators**.

Where the use of air-purifying respirators is required, the respirator's cartridges will be changed (replaced with new cartridges) six months after opening the cartridge's package and placing the cartridge in service, at the user's discretion, or following the manufacturer's recommendations, whichever comes first.

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## **RESPIRATORY PROTECTION**

The date the cartridges are put in service will be marked on the cartridge in a manner that will not interfere with the seating of the cartridge in the cartridge holder. This will ensure that the cartridges are replaced before the end of their service life.

### **6.0 Medical Evaluations**

Global Water Resources will provide a medical evaluation and/or examination to determine the employee's ability to use a respirator. If a medical evaluation is conducted, the following guidelines will be followed:

- Global Water Resources will use a PLHCP to perform medical evaluations using a medical questionnaire (see [Respiratory Medical Evaluation Questionnaire](#)).
- The [Respiratory Medical Evaluation Questionnaire](#) will be administered confidentially during the employee's normal working hours in a manner that ensures the employee understands its contents.
- Global Water Resources will require a follow-up medical evaluation for an employee who gives a positive response to any question among questions 1-8 in Part A, Section 2 of the questionnaire.
- Global Water Resources will provide the employee with an opportunity to confidentially discuss the questionnaire and any examination results with the PLHCP if requested by the employee or required by the PLHCP.
- The PLHCP shall provide Global Water Resources and the employee with a written recommendation regarding the employee's ability to use a respirator. The employee's supervisor will maintain Global Water Resources copy of the recommendation in the employee's file.

A medical evaluation using the [Respiratory Medical Evaluation Questionnaire](#) will be administered by Global Water Resources every two years for all employees who are required to wear a respirator to determine the employee's ability to wear a respirator. Medical evaluations may be conducted more frequently if:

- An employee reports medical signs or symptoms that are related to the ability to use a respirator.



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## **RESPIRATORY PROTECTION**

- A physician or other PLHCP, supervisor, or Operational Management informs the employer that an employee needs to be re-evaluated.
  
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation, or
  
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on the employee.

In addition, Global Water Resources will provide medical evaluations or examinations for employees who elect to voluntarily wear a respirator. This does not apply to employees who only voluntarily wear a filtering face piece (dust mask) respirator.

**Note:** Where the mandatory use of a respirator is not required by this procedure, Global Water Resources may permit voluntary use of a personal respirator provided that such respirator use will not in itself create a hazard. If permitted see training section for additional requirements.

### **7.0 Fit Test Procedures**

Any employee required to use any respirator with a negative or positive pressure tight fitting face piece will be fit tested with the same make, model and size of respirator that the employee will use.

The fit test will be administered using an OSHA-accepted qualitative or quantitative fit test as contained in Appendix A of 29 CFR Part 1910.134.

When practical/necessary, respirators will be assigned to individual workers for their exclusive use, which will help ensure proper fitting.

### **8.0 Procedures For Use Of Respirators**

Respirators cannot be worn when conditions prevent a good face seal. Proper fitting is of critical importance when entering a contaminated atmosphere. Conditions, which can prevent a good seal, include facial hair and temple pieces on glasses.

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- Employees who are required to wear any type of respirator cannot have beards, bushy sideburns, and/or other facial hair or hairstyles that interfere with the face piece seal or valve function.
- Goggles, a face shield, a welder's helmet or glasses may be worn with a respirator, provided that the device does not interfere with the normal positioning of the respirator on the face.
- Conventional glasses (with temple bars) cannot be worn with full face piece respirators. Where corrective lenses are required during the use of full face piece respirators, the Company will purchase the appropriate spectacle kits approved by the respirator manufacturer.

To ensure proper protection, wearers must check the fit of the face piece each time they put on a respirator. The employee's diligence in observing these factors will be evaluated by periodic checks, which may include subjecting the employee to a test atmosphere.

Employees will leave a respirator use area (contaminated atmosphere or oxygen deficient atmosphere) in the event of any of the following conditions:

- To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use; or
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or
- To replace the respirator or the filter, cartridge, or canister element.

### **9.0 Required Use Of Respirators**

Employees are required to wear the appropriate respirator as specified in the following subsections when exposed to, or there is a potential for exposure to, a contaminated atmosphere under the following conditions or operations:

- Changing out chlorine cylinders.
- During the repair of minor chlorine leaks when the chlorine leak detection system has been activated.

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## **RESPIRATORY PROTECTION**

- When handling or potentially exposed to airborne dusts from Potassium Permanganate, Powdered Activated Carbon, Copper Sulfate, etc.
- When dealing with any exposure to chemicals where the concentration level of the exposure is unknown.
- When opening equipment and/or piping that contained chemicals such as ammonia, chlorine, sulfur dioxide, etc.
- When industrial hygiene personal monitoring data or other subjective data indicates the potential for airborne exposure that exceeds applicable limits.

### **Atmospheres Immediately Dangerous To Life & Health (IDLH)**

When operating in IDLH atmospheres, employees must adhere to the following:

- One employee, acting as the buddy or backup, must be located outside the IDLH atmosphere.
- Visual, voice, or signal line communication must be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The employee located outside the IDLH atmosphere will offer minimal aid if necessary and be properly trained in all aspects of the respiratory protection program. In addition, the employee located outside the IDLH area must be properly trained in effective emergency rescue as required by 29 CFR 1910.134(g)(iii).
- The employee outside the IDLH atmosphere will notify outside response agencies (Fire and Rescue by dialing 9-1-1) prior to making any entry to provide emergency assistance to those employees inside the contaminated atmosphere.
- The employee located outside the IDLH atmosphere must be equipped with Pressure Demand or other positive pressure SCBAs, and appropriate retrieval equipment or equivalent means for rescue where retrieval equipment is not required.

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## **RESPIRATORY PROTECTION**

### **11.0 Respirator Maintenance**

Respirators must be regularly cleaned and disinfected. Most respirators can be cleaned with ordinary dishwashing liquid and warm water. Consult and follow the manufacturer's cleaning and sanitation instructions.

- Most respirator face pieces can be sanitized in a solution of household bleach and water mixed in a solution of 2 tablespoons of bleach to one gallon of water.
- Respirators issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- Shared respirators (issued for use by more than one employee) will be cleaned and disinfected after each use. The responsibility for this task is assigned to the employee who used the respirator.
- Respirators maintained for emergency use (such as the SCBA) will be cleaned and disinfected after each use. This is the responsibility of the individuals that use the respirators.
- Respirators used in fit testing and training will be cleaned and disinfected after each use.

### **12.0 Storage Of Respirators**

All respirators will be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

Respirators will be packed or stored to prevent deformation of the face-piece and exhalation valve.

Chemical cartridge respirators shall be stored in a plastic bag capable of being sealed, (such as a zip lock baggie) when not in use.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **RESPIRATORY PROTECTION**

### **13.0 Inspection Of Respirators**

All respirators used in routine situations will be inspected before each use and during cleaning. This inspection will be performed in accordance with the manufacturer's guidelines.

All respirators maintained for use in emergency situations such as SCBAs will be inspected weekly in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use. This inspection must be documented.

### **14.0 Repair Of Respirators**

Minor repairs to respirators such as the replacement of worn or damaged parts will be accomplished utilizing manufacturer's guidelines.

Repairs needed for respirators maintained for use in emergency situations (SCBAs), will be accomplished utilizing the manufacturer's field maintenance manual or by authorized maintenance contractors.

### **15.0 Quality Of Air For Self-Contained Breathing Apparatus And Supplied Air Respirators**

Compressed air utilized in SCBA and SARs will meet at least the requirements for Type 1, Grade D breathing air quality.

A certificate of analysis must be obtained from the supplier that the breathing air meets the requirements above.

### **16.0 Requirements For Compressor Of Supplied Air Respirators**

Manufacturer's recommendations for operation and maintenance will be followed and required inspections will be documented.

### **17.0 Training**

Each employee expected to use respirators while performing their duties will receive appropriate training.

This training will provide the employee an opportunity to handle the respirator, have it fitted properly, test its face piece-to-face seal and wear it in normal air for a familiarity period. Every wearer will receive fitting instructions and directions on how to adjust the respirator.

# **HEALTH & SAFETY PROCEDURES MANUAL**

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The training will also cover the proper use of respirators and their limitations as well as the respiratory hazards to which they are potentially exposed during routine and emergency situations.

The Operational Management Department shall insure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations when the respirator malfunctions;
- What the procedures are for maintenance and the storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- The general requirements of this section.

### **18.0 Program Evaluation Procedures**

The Operation Management will evaluate this program as necessary to ensure that the written respiratory program is being properly implemented.

The Local Managers / Supervisors will consult with employees required to use respirators to assess the employee's view on program effectiveness and to identify any problems. Factors that will be assessed include, but are not limited to:

- Respirator fit;
- Appropriate respirator selection for the hazards to which the associate is exposed;
- Proper respirator use under the workplace conditions the associate encounters; and
- Respirator maintenance.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **RESPIRATORY PROTECTION**

### **19.0 RECORDKEEPING**

Recordkeeping will include medical evaluations, fit testing, and a written copy of the current respiratory program, and written materials related to the program. Employee medical information will be kept in a separate, confidential file as per Global Water Resources requirements.

#### **1.0 Purpose**

Eliminating unsafe acts and unsafe conditions that cause or could cause bodily injury and/or property damage is the purpose of the Company's Health & Safety Manual and Plan.

#### **2.0 Scope**

The Company designed this section for all its operating companies.

#### **3.0 Responsibilities**

##### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

##### **3.2 Employees**

Employees are responsible for complying with this procedure.

#### **4.0 Non-Compliance With Any And All Company System Policies And Procedures Relative To Safety**

- Cite violations consistently and fairly. Use citations to identify underlying reasons for the infraction such as lack of training, inadequate property inspections, etc.
- Explain the Safety Code to all employees so they understand it. Have employees sign the [Acknowledgment of Receipt of Safety Code](#) indicating that they have read and understood the Safety Code.

# HEALTH & SAFETY PROCEDURES MANUAL

## SAFETY CODE

- Any decision to waive, lessen or increase the penalties outlined in the Safety Code must be approved by the operating company's senior officers of Global Water Resources.
- The American System Safety Code provides rules and guidelines for safe working conditions for all employees.
- Safe working conditions are of primary importance in respect to the personal safety and health of each employee in the workplace. No employee is required to work in conditions which are unsafe or unhealthy. Each employee has the responsibility to detect unsafe situations, and to immediately advise their supervisor of an unsafe situation that is beyond their ability or authority to correct.
- Safety rules and guidelines are established so that all employees can be aware of what is expected of them in regards to a safer working environment. ALL employees, hourly or supervisory, are expected to comply with safe working rules and guidelines.
- Non-compliance with safe working rules and guidelines constitutes a violation of the Safety Code. Administer appropriate disciplinary action consistently and fairly to those who fail to abide by them.
- The following numbered sections describe unsafe acts or situations which are created when safe working rules and guidelines are not complied with and should be resolved by the appropriate disciplinary actions. Disciplinary action can also apply to additional unsafe acts or situations not listed below in the Safety Code.

### 5.0 Personal Protective Equipment Not Being Worn

- Failure to wear personal protective equipment in posted areas or in performing duties requiring protection as explained by a supervisor or in company training sessions. Personal protective equipment may consist of respiratory equipment, hard hats, face masks or shields, goggles, safety glasses, hearing protection equipment, safety vests, aprons, gloves, safety toed shoes, metatarsal guards, etc.
- Examples of conditions where personal protective equipment is required are listed below. This is **not** a complete listing and may be expanded as conditions dictate.



# HEALTH & SAFETY PROCEDURES MANUAL

## SAFETY CODE

1. Operation of, or helping in the operation of, power or hand tools, such as:

Grinders and Drills	Earth Tampers
Pavement Breakers	Welding or Soldering Equipment

2. Performing various procedures such as:

Cutting Pipe	Melting, Pouring Pipe Joint Materials and Caulking Pipe Joints
Flaring Pipe	Handling Chemicals
Tapping Pipe Under Pressure	Entering Confined Spaces
Chipping or Striking Rock, Concrete, Asphalt or any other objects or Substances	Flagging traffic or working in or close to traffic

### **6.0 Causing Or Creating Unsafe Acts Or Conditions Relative To Motors, Electrical Equipment, Etc.**

- Failure to utilize Lockout/Tag-out devices.
- By-passing, removing or causing to be in-operative any mechanical or electrical safety device or limit stop, including but not limited to the following:

Motor Overloads	Governors on Portable Motor-Operated Equipment
Increasing Recommended Fuse/Circuit Breaker Ratings	Blocking Overload or Under-Voltage Protection Devices
Safety Gates, Locks, Springs or Hooks	Machine Guards

### **7.0 Unsafe Driving And/or Use Of Company Vehicles Including, But Not Limited To, The Following**

Speeding	Allowing Unauthorized Persons to Ride in Company Vehicles
Driving Through Stop Signs or Red Lights	Failure to Use Wheel Chocks When Required
Driving Too Close to Other Vehicles	Failure to Use Parking Cones When Required
Reckless Driving	Driving or Operating a Vehicle Without First Having Cleared Windows of Ice, Snow or Other Obstructions Which Impair Visibility
Failure to Give Proper Signals	Riding, or Allowing Another Person to Ride, in an Unsafe Manner
Driving Too Fast for Conditions	Failure to Obey Traffic Control Devices at Company Facilities
Failure to Yield Right-Of-Way	Failure to Maintain Control of Vehicle at All Times

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **SAFETY CODE**

Improper Backup or Backing Procedures	Failure to Obey Local, State and Federal Traffic/ Motor Vehicle Regulations
Failure to Wear Seat and Shoulder Belts	Failure to Secure Load
Failure to Lock Vehicle When Vehicle is Unattended	Failure to Perform Vehicle Self-Inspections as Required by Company and/or Regulations
Knowingly Operating a Defective Vehicle	

### **8.0 Unsafe Acts Relative To The Use Of Tools, Equipment Or Materials**

- Using or allowing to be used damaged, worn or faulty hand tools or other equipment, such as wrenches, hammers, screwdrivers, shovels, picks, ladders, ropes, cables, chains, etc.
- Failure to use proper tools or equipment.
- Failure to use portable ground fault circuit interrupters where and when needed.
- Failure to use a ground device when changing or working on water meters where required.
- Failure to use life preserver and/or lifeline as required while working near, on, over a body of water, or in high locations.
- Improper use of tools or equipment.
- Operating equipment and/or handling material which the employee is not qualified or authorized to use.
- Stacking or permitting materials to be stacked in an unsafe manner.

### **9.0 Other General Unsafe Acts, Such As, But Not Limited To**

- Improper lifting;
- Failure to report injuries or accidents or unsafe conditions before the end of the normal work shift;
- Failure to use ladders where hazards indicate need for them, and improper use of ladders;
- Leaving the scene of a vehicle accident before properly reporting the accident;
- Failure to report motor vehicle violations incurred while operating a Company vehicle or driving on Company business;
- Failure to maintain good housekeeping;
- Engaging in horseplay.

# HEALTH & SAFETY PROCEDURES MANUAL

## SAFETY CODE

### 10.0 Non-Compliance With Federal, State And Local Safety Rules And Regulations, As Explained By The Supervisor Or During Training/Education By The Company

### 11.0 Improper Use Of Equipment Or Materials And/or Unsafe Act Involving Hazardous Materials Which Results In Or Could Have Resulted In

Release of a hazardous substance to the environment or workplace
Endangerment of public health or safety
Damage to company property and/or property of others

### 12.0 Disciplinary Action To Be Administered

Administer appropriate disciplinary action for violations of unsafe acts or conditions as follows; however the company reserves the right to waive, lessen or increase the penalty, depending upon the circumstances involved:

Violation	Penalty
Willful or negligent violations resulting in a fatality or serious harm/endangerment to public health and safety, or major property damage.	<b>First Offense</b> - Discharge
Willful or negligent violations resulting in the hospitalization of any person, or significant harm/endangerment to public health and safety, or significant property damage.	<b>First Offense:</b> 5 to 30 work days suspension without pay. <b>Second Offense</b> - Discharge
Violations resulting in personal injury to any person, or minor harm/endangerment public health and safety, or minor property damage.	<b>First Offense:</b> 1 to 5 work days suspension without pay <b>Second Offense:</b> 5 to 30 work days suspension without pay. <b>Third Offense:</b> Discharge
Violations not resulting in any personal injury or harm/endangerment to the environment or public health and safety, or property damage.	<b>First Offense:</b> Verbal Warning confirmed in writing. <b>Second Offense:</b> 1 to 5 work days suspension without pay. <b>Third Offense:</b> 5 to 30 work days suspension without pay. <b>Fourth Offense:</b> Discharge.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **SAFETY CODE**

### **Notes:**

1. A "willful" violation is one that is deliberate, voluntary or intentional as distinguished from one which is inadvertent, accidental or ordinarily negligent.
2. Issue the employee a personal letter in writing each time a violation occurs and a penalty is administered, confirming the violation and stating that any subsequent violation within two (2) years from the date of the occurrence of the current violation is a cause for discipline under the next progressive "Offense". Issue a copy of the confirming letter to the Union or the employee's representative.
3. Consider any and all violations and penalties within a 24 month period to determine the penalty. In clarification of this policy, administer the penalty for a "second offense" within a 24 month period, even though the "first offense" violation was a different type of violation.
4. Do not use prior written notices/warnings or disciplinary actions resulting in a time off without pay as a basis for further discipline of an employee provided the employee has maintained a clear record for a 24 month period.

### **13.0 Recordkeeping**

Maintain citations, letters, etc., produced in complying with this code in the employee's personnel file. Remove all correspondence relating to a violation from the file 24 months from the date of the violation.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING & ORIENTATION, SAFETY**

### **1.0 Purpose**

The purpose of this procedure is to define the health and safety training requirements for all new employees and transfers. This section also covers the requirements for ongoing employee health and safety training.

### **2.0 Scope**

This procedure applies to all Global Water Resources Operations and is applicable to all supervisors, new hires, and employees who transfer from one department to another.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to ensure that all new hires and employees transferring from one department to another receive a health and safety orientation before being assigned to work. Supervisors will also have the responsibility for ensuring that ongoing health and safety training is provided in accordance with regulatory requirements and company policy.

It is also the responsibility of all supervisors to enforce the existing safety code.

#### **3.2 Employees**

It is important that all employees understand their responsibility to work safely and in compliance with all existing health and safety procedures and the safety code. These responsibilities include but are not limited to the following:

- Participating in on-the-job training programs
- Using required personal protective equipment (PPE) when appropriate
- Practicing good housekeeping
- Complying with all local, state, & federal regulations
- Complying with Global Water Resources health and safety policies and procedures which includes the safety code
- Reporting all accidents/incidents before the end of the work shift

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING & ORIENTATION, SAFETY**

### **4.0 REPORTING OF UNSAFE OR UNHEALTHFUL WORKING CONDITIONS**

It is the responsibility of all employees to report unsafe or unhealthful conditions to their immediate supervisor orally or in writing. It is the supervisor's responsibility to keep the reporting employee informed of all actions taken. The Operational Management Department will investigate all reports brought to their attention.

### **5.0 SAFETY TRAINING PROGRAMS**

- The company will develop and provide health and safety training programs for employees and management.
- The company will specify training intervals, recordkeeping requirements, and standardize written training programs to assist supervisors in providing the safety and health information and instruction needed for the employees.
- The company will maintain specific safety training program guidelines and instructions.
- A written record of employee health and safety training will be maintained by the supervisor.

### **6.0 WEEKLY SAFETY MEETINGS**

- In addition to scheduled formal and on the job health and safety training, employees and management will coordinate and participate in weekly safety meetings.
- Supervisors or their designee will maintain a file, documenting attendance and subject matter.
- Suggestions and guidelines for weekly training include:
  1. Make sure the topic(s) covered is pertinent to the individuals attending the meeting.
  2. Don't allow safety meetings to become complaint sessions. Concentrate on the week's safety topic.
  3. The use of chalkboards, flip charts, slides, movies, videotapes, or other audiovisual aids make the talks more interesting.
  4. Involve employees in the meetings. Ask questions and promote discussions.

# **HEALTH & SAFETY PROCEDURES MANUAL**

# **VEHICLE SAFETY PROCEDURE -- CDL**

## **1.0 Purpose**

This procedure outlines the requirements for Commercial Driver Licensed (CDL) vehicle safety. The purpose of this procedure is to reduce personal injury, vehicle and property damage.

## **2.0 Scope**

This procedure applies to all motor vehicle operations and drivers of commercial driver licensed (CDL) required company vehicles. The safety of our customers, associates and the general public is a primary consideration of Global Water Resources.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

### **3.2 Employees**

Employees are responsible for complying with this procedure.

## **4.0 General**

- All operators of company vehicles must have a valid, appropriate driver's license for the specific type of vehicle to be operated, a current medical exam (Long Form on file), medical exam wallet card in their possession and must be familiar and abide by all traffic laws.
- Commercial drivers of commercial motor vehicle (CMV) Company vehicles must provide a copy of their driving abstract annually. Driver performance will determine if you continue with the privilege of driving a company vehicle. An annual motor vehicle record check will be done on all drivers.
- An inspection of the vehicle shall be performed daily prior to leaving the job site. Records of daily inspections must be kept for 3 months.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## VEHICLE SAFETY PROCEDURE – CDL

- Picking up hitchhikers is strictly forbidden. Unauthorized passengers in company vehicles are prohibited.
- All vehicle accidents/occurrences, major, minor, must be reported immediately to your supervisor.
- Never operate a company vehicle when your ability to do so has been Impaired for any reason. This includes but is not limited to being under the influence of intoxicating beverages, drugs, or prescription medications, which may impair your reaction time. **NO** consumption of alcoholic beverages within four (4) hours of the beginning of your shift.
- At least one rear wheel must be blocked (front and rear) before raising a vehicle with a bumper jack. Never crawl under a vehicle raised by a bumper jack or any kind of support that could fail and allow the vehicle to fall.
- Seat belts are installed in all company vehicles. They must be maintained in good operating condition and must be worn by all persons at all times.
- Unsafe and discourteous driving practices such as road hogging, disregarding the rights of pedestrians, violating traffic regulations, and deliberate recklessness of any kind will not be tolerated. Such conduct on the part of drivers operating Company vehicles provoke ill will toward the Company and causes accidents. Documented occurrences will result in the driver losing their Company driving privileges.
- The driver must take positive action to ensure a vehicle does not move while unattended. A vehicle must not be left parked with motor running.  
**Note:** This does not apply to service vehicles that must be kept running at a job site for their intended function.
- Vehicle must be locked at all times when left unattended.
- Drivers must be sure the path is clear before moving a vehicle.
- Getting on or off a motor vehicle while it is in motion is strictly forbidden. Riding on the outside of the vehicle is also forbidden.
- Smoking is not allowed in or around a motor vehicle while it is being refueled.

## **HEALTH & SAFETY PROCEDURES MANUAL**



## **VEHICLE SAFETY PROCEDURE -- CDL**

- Except in emergencies, gasoline must not be carried inside passenger cars or cabs of trucks.
- Company vehicles must be maintained in good mechanical condition at all times. If the driver detects a mechanical defect or safety hazard in a vehicle assigned them, they will arrange to have repairs made at once. Safety sensitive items must be repaired before the vehicle is taken on the road.
- The use of cell phones without hand-free capability, laptop computers, hand-held organizers, electronic equipment and pagers while driving is prohibited.
- The use of two-way radios is allowed for brief conversation, defined as less than 30 seconds. The driver must pull over for longer conversations.
- Radar detecting devices are strictly prohibited on any vehicle operating for or on behalf of Global Water Resources
- All drivers operating vehicles for or on behalf of Global Water Resources must report all highway traffic offenses, convictions, vehicle inspections and/or license suspensions.
- The use of company vehicles other than for authorized company business is prohibited.
- The possession of any firearm, dangerous or offensive weapon on company premises including company vehicles, or vehicles operated for or on behalf of Global Water Resources is strictly prohibited.

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### **5.0 Reporting Accidents**

Every person while operating a vehicle that is owned or leased by or for Global Water Resources, or every person operating any vehicle that is authorized to be operated by or for Global Water Resources under the company's operating license authorities, is required to report all vehicle accidents immediately to their immediate supervisor and then provide written details of the occurrence on the company's occurrence report form by the close of the business day. The occurrence report is required for the following:

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## **VEHICLE SAFETY PROCEDURE -- CDL**

- Any contact of our vehicle with another conveyance or vehicle. Applies whether:
  1. Our vehicle is moving or standing
  2. Other conveyance or vehicle is moving or standing
  3. Damage is apparent or not
  
- Our vehicle is put out of service by any highway official.
  
- Collisions, involving company vehicles, occurring on streets or highways or in garages, parking lots, or other places, shall be reportable on the company's occurrence report form.
  
- Any contact of our vehicle with an outside object, including stray animals applies whether:
  1. Object is stationary or moving;
  2. Damage is apparent or not;
  3. Any contact of a company vehicle with a person
  4. Regardless of a collision, any injury or alleged injury to a person;
  5. Traveling as a passenger;
  6. Getting in or out of your vehicle.
  
- Any damage or alleged damage to property. Applies whether
  1. The property is near or adjacent to the vehicle, or in the process of being placed in or on the vehicle;
  2. Property is on the customer's premises.
  
- Injury or damage or alleged injury or damage resulting from:
  1. Rough handling of the vehicle;
  2. Rough roads;

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3. Sudden starting/stopping of the vehicle;

4. Driving or skidding off the traveled portion of the driving surface.

- When a vehicle leaves the highway unintentionally whether damage or injury is apparent or not.
- Any claims that faulty handling of our vehicle forced the other vehicle off the highway or into an accident in which the vehicle itself was not involved by direct contact.
- Upon the receipt of any driving offense or infraction of any highway traffic law under which the vehicle is being operated, a vehicle safety inspection or detention of the company vehicle by any law enforcement agency.
- In the event of a break-in to any vehicle (trailer, cab).
- Theft of any nature, including cargo, tires and any items contained in the cab.

### **5.1 In The Event Of An Accident**

If you are involved in an accident, there are very specific procedures to follow that will ensure you get assistance without delay. Company policies, as shown below, require detailed information of the accident scene, witnesses, etc.

- Notify or make every effort to have the police notified immediately. When speaking with the police and/or emergency personnel, remain calm, speak clearly, identify yourself, and provide as much information as is requested.
- Notify your dispatcher and/or immediate supervisor without delay. Request police and/or ambulance when necessary.
- If anyone is injured, render all possible assistance to make him or her comfortable, until appropriate help arrives.
- Do not move injured persons unless there is danger that it is life threatening, e.g. fire or explosion.

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- Place warning devices (triangles) 100 feet (30 meters) to the front and to the rear of your vehicle. Ensure warning devices are visible to oncoming traffic (Applies only on two-lane roads).
- Do not discuss the accident with anyone – make no statements except to the police, our insurance adjusters and our own management staff.
- Do not admit blame or accept personal or company responsibility.
- Do not move your vehicle unless requested to do so by enforcement personnel.
- Record the names and phone numbers of all witnesses. Make a note of the injuries sustained by each person and what vehicle or position they were in when the accident occurred if possible.
- Do not make any statements relating to the occurrences at any time to the press; refer all press inquiries to your manager.

### **5.2 Post Accident Testing Procedure**

In the United States, the Federal Highway Administration Act states that the employer shall test for the presence of alcohol and drugs, as soon as possible, each surviving driver who was performing safety sensitive functions with respect to the vehicle when the accident resulted in:

- A fatality;
- The driver received a citation for a moving violation in conjunction with the accident;
- Any vehicle involved in an accident which was disabled requiring towing;
- Medical treatment was given to ANYONE involved in the accident away from the scene.
- The driver must remain available up to 8 hours for alcohol and 32 hours for drug testing.
- Failure to remain available for testing may be deemed a refusal to test according to CFR Title 49 Section 382.303(c) and is grounds for termination.

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## **VEHICLE SAFETY PROCEDURE -- CDL**

### **5.3 Minimum Vehicle Safety Equipment Requirements**

- Each Global Water Resources vehicle will have a current State's Annual Vehicle Inspection sticker in those States that require approved annual safety inspections.
- Every vehicle shall operate with their heads lights on, if not equipped with day light running lights.
- All loose items in the back of pickups and utility trucks shall be kept secured while in route to the job-site.
- Every Global Water Resources vehicle should be equipped with the following safety equipment:
  1. first aid kit;
  2. 2.5 # or greater ABC fire extinguisher;
  3. triangle warning devices;
  4. rear bumpers should have reflective tape installed
  5. yellow/orange lights for night work and
  6. equipped with back-up alarms.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **VEHICLE OPERATION-- NON-CDL VEHICLES**

### **1.0 Purpose**

This procedure outlines the requirements for Non-Commercial Driver Licensed (Non-CDL) vehicle safety.

### **2.0 Scope**

This procedure applies to all motor vehicle operations and drivers of non-commercial driver licensed (Non-CDL) required company vehicles. The safety of our customers, associates and the general public are of utmost concern to Global Water Resources. The purpose of this procedure is to reduce personal injury, vehicle and property damage.

### **3.0 General**

- Vehicles leased or owned by the company are to be used only for company business.
- Drivers assigned vehicles are responsible for timely and routine maintenance.
- All drivers are required to abide by all federal, state and local motor vehicle regulations, laws and ordinances.
- All fines, defense costs and other legal penalties arising out of ticketed offenses are the responsibility of the driver.
- Drivers are prohibited from smoking in company vehicles
- Prior to starting a vehicle, drivers are required to inspect the vehicle exterior and the area around the vehicle. This includes checking tires, leaks, body condition and clearances to other vehicles and objects. Any defects or concerns must be reported immediately.
- Drivers are responsible to ensure that all required documents are in the vehicle (registration, insurance card and accident reporting form).

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- A driver may not operate a vehicle at any time when his/her ability is impaired, affected, or influenced by alcohol, illegal drugs, medication, illness, fatigue or injury.
- No driver may have or permit possession of alcohol or illegal drugs in a vehicle being used for business purposes.
- The driver and all occupants are required to wear safety belts when operating or riding in a vehicle. The driver is responsible to ensure all passengers are wearing their safety belts at all times.
- Drivers are not to pick up hitchhikers.
- Drivers are not to accept direct payment for carrying passengers or materials except as directed by your supervisor.
- Drivers are not to push or pull another vehicle or tow a trailer without authorization.
- Drivers are not to transport flammable liquids and gasses unless a D.O.T. or UL approved container is utilized, and only then in limited quantities and only when necessary.
- Drivers are not to assist disabled motorists or accident victims beyond the level of their medical training: EMT, CPR, Basic First Aid etc. If a driver is not qualified to provide the above services, he/she must restrict his/her assistance to calling the proper authorities.
- Report all accidents, vehicle problems or defects immediately to your supervisor, including completing and forwarding any forms required by your supervisor.
- Drivers are required to notify their supervisor of any tickets, accidents or other violations they have received while driving. Notifications must be as soon as reasonably possible but in no way, later than the next scheduled driving duty to be performed.
- Drivers are to sign a statement acknowledging receipt, review, and understanding of the safe driving rules (see [Defensive Driving Rules](#)). Failure to practice these rules can result in disciplinary measures up to and including dismissal (see [Defensive Driving Rules](#)).

1. All operators of company vehicles must have a valid, appropriate driver's license for the specific type of vehicle to be operated and must be familiar and abide by all traffic.
2. Picking up hitchhikers is strictly forbidden. Unauthorized passengers in company vehicles are prohibited.
3. All vehicle accidents/occurrences, major, minor, must be reported immediately to your supervisor.

## **HEALTH & SAFETY PROCEDURES MANUAL** **VEHICLE OPERATION-- NON-CDL VEHICLES**

4. Never operate a company vehicle when your ability to do so has been Impaired for any reason. This includes but is not limited to being under the influence of intoxicating beverages, drugs, or prescription medications, which may impair your reaction time.
5. At least one rear wheel must be blocked (front and rear) before raising a vehicle with a bumper jack. Never crawl under a vehicle raised by a bumper jack or any kind of support that could fail and allow the vehicle to fall.
6. Seat belts are installed in all company vehicles. They must be maintained in good operating condition and must be worn by all persons at all times.
7. Unsafe and discourteous driving practices such as road hogging, disregarding the rights of pedestrians, violating traffic regulations, and deliberate recklessness of any kind will not be tolerated. Such conduct on the part of drivers operating Company vehicles provokes ill will toward the Company and causes accidents. Documented occurrences will result in the driver losing their Company driving privileges.
8. The driver must take positive action to ensure a vehicle does not move while unattended. A vehicle must not be left parked with motor running. NOTE: This does not apply to service vehicles that must be kept running at a job site for their intended function.
9. Vehicle must be locked at all times when left unattended.
10. Drivers must be sure the path is clear before moving a vehicle.
11. Getting on or off a motor vehicle while it is in motion is strictly forbidden. Riding on the outside of the vehicle is also forbidden.
12. Smoking is not allowed in or around a motor vehicle while it is being refueled.
13. Except in emergencies, gasoline must not be carried inside passenger cars or cabs of trucks.
14. Company vehicles must be maintained in good mechanical condition at all times. If the driver detects a mechanical defect or safety hazard in a vehicle assigned them, they will arrange to have repairs made at once.
15. The use of cell phones without hand-free capability, laptop computers, handheld organizers, electronic equipment and pagers while driving is prohibited.



## **HEALTH & SAFETY PROCEDURES MANUAL** **VEHICLE OPERATION-- NON-CDL VEHICLES**

16. The use of two-way radios is allowed for brief conversation, defined as less than 30 seconds. The vehicle driver must pull over when engaged in two-way radio conversations longer than 30 seconds.

17. Radar detecting devices are strictly prohibited on any company vehicle.

18. The use of company vehicles other than for authorized company business is prohibited.

19. The possession of any firearm, dangerous or offensive weapon on company premises including company vehicles, or vehicles operated for or on behalf of Global Water Resources is strictly prohibited.

20. All operators of Global Water Resources vehicles must have an annual motor vehicle record check.

### **2.1 Post Accident Testing Procedure**

Drug and alcohol testing may be performed in accordance with Business Unit requirements if the employee is involved in an accident that meets the following criteria.

- An accident resulting in a fatality
  
- The driver received a citation for a moving violation in conjunction with the accident;
  
- Any vehicle involved in an accident which was disabled requiring towing;
  
- Medical treatment beyond on-site first-aid was given to ANYONE involved in the accident.
  
- The driver must remain available up to 8 hours for alcohol and 32 hours for drug testing.

Failure to remain available for testing may be deemed a refusal to test are grounds for termination.

# **HEALTH & SAFETY PROCEDURES MANUAL** **VEHICLE OPERATION-- NON-CDL VEHICLES**

## **2.2 Reporting Accidents**

Every person while operating a vehicle that is owned or leased by or for Global Water Resources, or every person operating any vehicle that is authorized to be operated by or for Global Water Resources under the company's operating license authorities, is required to report all vehicle accidents immediately to their immediate supervisor and then provide written details of the occurrence by the close of the business day.

- Any contact of our vehicle with another conveyance or vehicle. Applies whether:

1. Our vehicle is moving or standing
2. Other conveyance or vehicle is moving or standing
3. Damage is apparent or not

- Our vehicle is put out of service by any highway official.

- Collisions, involving company vehicles, occurring on streets or highways or in garages, parking lots, or other places, shall be reportable on the company's occurrence report form.

- Any contact of our vehicle with an outside object, including stray animals applies whether:

1. Object is stationary or moving;
2. Damage is apparent or not;
3. Any contact of a company vehicle with a person
4. Regardless of a collision, any injury or alleged injury to a person;
5. Traveling as a passenger;
6. Getting in or out of your vehicle.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **VEHICLE OPERATION-- NON-CDL VEHICLES**

- Any damage or alleged damage to property. Applies whether
  1. The property is near or adjacent to the vehicle, or in the process of being placed in or on the vehicle;
  2. Property is on the customer's premises.
- Injury or damage or alleged injury or damage resulting from:
  1. Rough handling of the vehicle;
  2. Rough roads;
  3. Sudden starting/stopping of the vehicle;
  4. Driving or skidding off the traveled portion of the driving surface.
- When a vehicle leaves the highway unintentionally whether damage or injury is apparent or not.
- Any claims that faulty handling of our vehicle forced the other vehicle off the highway or into an accident in which the vehicle itself was not involved by direct contact.
- Upon the receipt of any driving offense or infraction of any highway traffic law under which the vehicle is being operated, a vehicle safety inspection or detention of the company vehicle by any law enforcement agency.
- In the event of a break-in to any vehicle (trailer, cab).
- Theft of any nature, including cargo, tires and any items contained in the cab.

### **2.3 In The Event Of An Accident**

If you are involved in an accident, there are very specific procedures to follow that will ensure you get assistance without delay. Company policies, as shown below, require detailed information of the accident scene, witnesses, etc.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **VEHICLE OPERATION-- NON-CDL VEHICLES**

- Notify or make every effort to have the police notified immediately. When speaking with the police and/or emergency personnel, remain calm, speak clearly, identify yourself, and provide as much information as is requested.
- Notify your dispatcher and/or immediate supervisor without delay. Request police and/or ambulance when necessary.
- If anyone is injured, render all possible assistance to make him or her comfortable, until appropriate help arrives.
- Do not move injured persons unless there is danger that it is life threatening, e.g. fire or explosion.
- Place warning devices (triangles) 100 feet (30 meters) to the front and to the rear of your vehicle. Ensure warning devices are visible to oncoming traffic (Applies only on two-lane roads).
- Do not discuss the accident with anyone – make no statements except to the police, our insurance adjusters and our own management staff.
- Do not admit blame or accept personal or company responsibility.
- Do not move your vehicle unless requested to do so by enforcement personnel.
- Record the names and phone numbers of all witnesses. Make a note of the injuries sustained by each person and what vehicle or position they were in when the accident occurred if possible.
- Do not make any statements relating to the occurrences at any time to the press; refer all press inquiries to your manager.

### **2.4 Minimum Vehicle Safety Equipment Requirements**

- Each Global Water Resources vehicle will have a current State's Annual Vehicle Inspection sticker. In those States that do not require approved annual safety inspections, the vehicle will be annually inspected and comply with the Global Water Resources Safety Inspection form. See appendix.

## **HEALTH & SAFETY PROCEDURES MANUAL**

## **VEHICLE OPERATION-- NON-CDL VEHICLES**

- Every vehicle shall operate with their heads lights on, if not equipped with day light running lights.
- All loose items in the back of pickups and utility trucks shall be kept secured while in route to the job-site.
- Every Global Water Resources vehicle should be equipped with the following safety equipment:
  1. first aid kit;
  2. 2.5 # or greater ABC fire extinguisher;
  3. triangle warning devices;
  4. rear bumpers should have reflective tape installed
  5. yellow/orange lights for night work and
  6. equipped with back-up alarms.

# **HEALTH & SAFETY PROCEDURES MANUAL** **VEHICLE SAFETY PROCEDURE – PARKING CONES** **AND WHEEL CHOCKS**

## **1.0 Purpose**

This procedure informs employees on the proper use of parking cones and wheel chocks and is intended to prevent collisions with vehicles and/or nearby objects. In addition, the parking cone provides a public message that a service vehicle is present.

## **2.0 Scope**

The Company designed this section for all its operating companies.

## **3.0 Responsibilities**

### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

### **3.2 Employees**

Employees are responsible for complying with this procedure.

## **4.0 General**

- Use parking cones whenever company vehicles and equipment are parked and unoccupied.
- Operations Management (OM) will make final determinations on which vehicle may be exempt.
- Parking cones are to comply with the Manual of Uniform Traffic Control Devices Standards. Parking cones are to be a 28-inch "Full Skirt" type with a 13-inch semitransparent reflective cone collar. Position a parking cone at the rear of the vehicle.

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**AND WHEEL CHOCKS**

Where applicable (OM will make final the determination), place a second parking cone at the front of the vehicle.

- Parking cones require employees to “check” the rear of the vehicle before departing. Use wheel chocks whenever the vehicle must be stabilized from moving forward or backward (e.g., hills, slopes, inclines, and parked & running vehicles).
  
- Wheel chocks are to comply with OSHA Standard 29 CFR 1910.178 (k) (1). Position wheel chocks at the rear wheel(s) of the vehicle. Select the size and type of the wheel chock based on the vehicle size. Where applicable, secure wheel chocks to a safety rope or chain of sufficient length to allow placement of chock at the rear wheel.

# **HEALTH & SAFETY PROCEDURES MANUAL** **WALKING/WORKING SURFACES AND STAIRWAYS**

## **1.0 Purpose**

The purpose of this procedure is to define and establish the requirements of walking and working surfaces within Global Water Resources fixed facilities.

## **2.0 Scope**

Global Water Resources has developed guidelines for employees who work on or at surfaces where the potential for slips, trips and falls exists and to comply with OSHA 29 CFR 1910.22- 24 (see [Fall Protection](#) for specific requirements.)

## **3.0 Responsibilities**

Managers/Supervisors have the responsibility to assure that walking surfaces, aisle ways, passageways, stairs and guardrails are installed and adequate to protect employees from exposure to slips, trips, falls and are properly maintained.

Employees have the responsibility to report any deficiencies or hazards to supervisors/managers immediately, to comply with safe work practices and to not work in areas where appropriate safeguards or protection against falls is not provided.

## **4.0 Definitions**

**Fixed Industrial Stairs** – The riser height and tread width of fixed industrial stairs shall be uniform throughout any flight of stairs. All treads must be reasonably slip resistant.

**Floor Hole** – An opening measuring less than 12 inches but more than 1 inch in its least dimension, in any floor, platform, pavement or yard, through which materials but not persons may fall. Also, a gap or void 2 inches or more in its least dimension in a floor, roof, or other walking/working surface.

**Floor Opening** – An opening measuring 12 inches or more in its dimension, in any floor, platform, pavement, or yard, through which persons may fall.

**Guardrail System** – A standard guard railing shall consist of top rail, intermediate rail, and posts, and shall have a vertical height of 42 inches nominal from upper surface of top rail to floor, platform, runway, or ramp level. The top rail shall be smooth-surfaced throughout the length of the railing. The intermediate rail shall be approximately halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails shall not overhang the terminal posts except where such overhang does not constitute a projection hazard.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WALKING/WORKING SURFACES AND STAIRWAYS**

**Handrail** – A rail used to provide associates with a handhold for support.

**Lower-Levels** – Those areas to which an associate can fall from a stairway, platform wall or floor opening. Such areas include ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, material, water, equipment, and similar surfaces.

**Platform** – Any elevated surface designed or used primarily as a walking or working surface, and any other elevated surface on which employees are required or allowed to walk or work while performing assigned tasks on a regular basis.

**Point of Access** – Areas used for work related passage from one area or level to another. Such open areas include doorways, passageways, stairway openings, studded walls, and various other permanent or temporary openings used for such travel.

**Stair Rail System** – A vertical barrier erected along the unprotected sides and edges of a stairway to prevent associates from falling to lower levels. A standard railing shall consist of top rail, intermediate rail, and posts, and shall have a vertical height of 42 inches nominal from upper surface of top rail to floor, platform, runway, or ramp level.

**Handrail** - A lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail so as to offer no obstruction to a smooth surface along the top and both sides of the handrail.

**Standard Toe board** – A board or plate at least 3 ½ inches high in vertical height from its top edge to the floor, platform, runway, or ramp surface. It must be securely fastened in place with not more than ¼ inch clearance above the floor level. Toe-boards must be capable of withstanding a force of 50 lbs. in a downward or outward direction.

**Unprotected Side or Edge** – Any side or edge (except entrances or points of access) of a walking/working surface where there is no wall or guardrail at least 42 inches high.

**Walking and Working Surfaces** – Floors, scaffolds, guardrails, and stairs.

**Wall Hole** – An opening less than 30 inches but more than 1 inch high, of unrestricted width, in any wall or partition.

**Wall Opening** – An opening at least 30 inches high and 18 inches wide, in any wall or partition, through which persons may fall. Also, a gap or void 30 inches or more high and 18 inches or more wide in a wall or partition.

# **HEALTH & SAFETY PROCEDURES MANUAL** **WALKING/WORKING SURFACES AND STAIRWAYS**

## **5.0 Requirements**

### **5.1 General**

The Supervisor/Manager or other competent person will survey working surfaces where employees are required to work to determine whether the surface has the strength, structural integrity and protection to safely support employees.

Employees will be allowed to work on those surfaces only when the surfaces have the required strength, integrity and protection.

### **5.2 Housekeeping**

All walking/ working surfaces will be maintained in an orderly manner and kept free of scrap, oil, spills, and other debris.

All spills should be cleaned up promptly.

Areas that are constantly wet should have non-slip surfaces or mats. Where wet processes are used, adequate drainage must be maintained.

Where mechanical handling equipment such as lift trucks are used, safe clearance must be provided for foot and vehicular traffic.

All permanent aisles must be marked and kept unobstructed.

### **5.3 Unprotected Sides or Edges**

Each employee on a walking/working surface with an unprotected side or edge which is 4 feet or more above a lower level will be protected from falling by guardrail systems or personal fall arrest systems (see [Fall Protection](#) for specific requirements).

### **5.4 Floor Holes**

Floor holes will be guarded with a standard guardrail or an appropriate cover, secured to prevent movement and legibly marked as to its purpose. Floor hole covers will be a material that will meet the minimum strength requirement of supporting 200 pounds. When operations necessitate the removal of the guardrails or protective cover, fall arrest systems will be provided to prevent the person from falling through the hole. Floor holes will be covered or otherwise protected to prevent tools or materials from falling onto workers below.

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## **WALKING/WORKING SURFACES AND STAIRWAYS**

### **5.5 Wall Openings**

Every wall opening from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the floor, platform, or landing will be guarded with standard guardrails.

Chute wall openings (debris chutes) having a drop of 4 feet or more will be protected by guarding meeting the requirements of a standard guardrail. Protection to prevent persons from falling into the opening will be provided for employees placing material in the chute while the guards are removed.

### **5.6 Guardrails**

The Company considers guardrails the preferred method for preventing falls and these will be installed when feasible. For temporary guardrails, such as on scaffolds, temporary walkways, ramps, or other temporary platforms, the top rail may be a solid material (2 x 4, angle iron, pipe, etc.) or manila, plastic, or synthetic rope. Steel or plastic banding will not be used.

All materials will be inspected frequently to ensure they will withstand a 200-pound force in any outward or downward direction.

The Company will install a toe board on all work platforms if personnel are allowed to work or pass under the platform. Screening, with maximum 1/2" openings will be installed between the toe board and the top of the guardrail system if materials or tools are piled to a height higher than the top edge of the toe board, or if personnel are allowed to work or pass beneath the scaffolding.

### **5.7 Stairways**

A stairway or ladder will be provided at all points of access when there is a break in elevation of 19" or more to gain access to different levels of the building structure and no ramp, runway or sloped embankment is provided.

If a stairway has four or more risers, standard stair railings or standard handrails will be provided.

If stairways are less than 44 inches wide and have both sides enclosed, at least one handrail, preferably on the right side descending will be provided. A stair railing will be provided on any open side of a stairway.

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## **WALKING/WORKING SURFACES AND STAIRWAYS**

On stairways 88 or more inches wide, an additional handrail must be installed midway of the width.

Winding stairs will have a handrail offset to prevent walking on all portions of the treads having width less than 6 inches.

### **5.8 Platforms**

All platforms four feet or more above a lower level will be protected with standard guardrails except where access to a stairway is required. If platform access is by ladder, a self-closing gate will be installed at the access point to the platform.

### **6.0 Training**

The Supervisor/Manager or other designated competent person will train all employees on the contents of this policy and on specific work practices and areas where this procedure applies in order to minimize the likelihood of accidents.

A record of the training will be kept at the jobsite.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WELDING**

### **1.0 PURPOSE**

The purpose of this procedure is to reduce or eliminate personal injury, and or property damage.

### **2.0 SCOPE**

This procedure applies to all Company operations and contractor associates. The safety of our customers, employees and the general public is of utmost concern to the Company in accordance with OSHA 29 CFR 1910.252 and 29 CFR 1926.350 and 351.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor's responsibility to comply with and ensure that this procedure is followed, that employees are familiar with the requirements, and operations are conducted in a safe manner and within applicable local, state and federal regulations.

#### **3.2 Employees**

Employees are responsible for complying with this procedure.

### **4.0 PROCEDURES**

- Only qualified welders are authorized to do any welding, heating or cutting.
- Each work area must be inspected for fire hazards and proper ventilation before any welding or cutting.
- All combustibles shall be relocated at least 35 feet (10.7m) from work site.
- Where relocation is impracticable, combustibles shall be protected with flameproof covers or curtains
- Trained fire watchers shall be required whenever welding or cutting is performed in locations where a fire might develop, or any of the following conditions may exist:
  1. Appreciable combustible materials, in building construction or contents, closer than 35 feet to the point of operation;

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WELDING**

2. Appreciable combustibles that are more than 35 feet away but are easily ignited by sparks;
  3. Wall or floor openings within 35 feet radius that expose combustible materials in adjacent areas, concealed space in walls or floors; and/or
  4. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation;
- Fire watchers shall have fire-extinguishing equipment readily available and be trained in its use.
  - Fire watchers shall be familiar with procedures for sounding a fire alarm in the event of a fire.
  - A fire watch shall be maintained for at least a half-hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.
  - Fire extinguishers shall be present and maintained in a state of readiness for instant use.
  - Cutting or welding shall not be permitted in the following situations:
    1. In areas not authorized by management;
    2. In buildings while sprinkler protection is impaired;
    3. In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dust in air) or explosive atmospheres that may develop inside un-cleaned or improperly prepared tanks or equipment.
    4. Ducts and conveyor systems that might carry sparks to distant combustibles shall be protected or shutdown.
  - Welders or helpers working on platforms, scaffolds, or runways shall be protected against falling. Railings, safety harness, lifelines, or shall be used.
  - Always wear leather gloves, goggles with suitable filter lenses when using a torch. Wear a head shield or helmet with suitable filter plates when arc welding. Lenses shall bear some permanent marking which may readily identify the source and shade.

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## WELDING

- Welding may produce fumes and gases hazardous to your health. Use adequate ventilation.
- Welding in confined spaces requires continuous air monitoring by direct reading instrument. Ventilation is required for confined space welding. All welders working in confined spaces must first complete confined space training.
- When welding or cutting is performed in any confined space, cylinders and welding machines will be staged outside of the space.
- All welding equipment shall be inspected before every use.
- A [Hot work permit](#) is required when welding, cutting, grinding in confined spaces and chlorine process areas.

### 5.0 Gas Welding and Cutting

- When transporting and storing compressed gas cylinders always ensure the valve protection cap is in place.
- Secure cylinders in a cradle, sling board, or pallet when hoisting. Never hoist or transport by means of magnet or slings.
- Do not hoist cylinders by lifting on the valve protection caps.
- Remove regulators and secure valve protection caps prior to moving cylinders, unless cylinders are firmly secured on a special carrier intended for transport.
- Close cylinder valves when work is finished and when cylinders are empty.
- Secure compressed gas cylinders in an upright position except when cylinders are actually moved.
- Cylinders stored indoors shall be stored in a well-protected, well-ventilated, dry location, at least 20 (6.1m) feet from highly combustible materials. Cylinders should be stored away from elevators, stairs, or gangways.

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## **WELDING**

- Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet (1.5m) high having a fire resistance rating of at least one-half hour.

### **6.0 Arc Welding and Cutting**

- Use only manual electrode holders specifically designed for arc welding and cutting.
- Grounding of all welding machines shall be checked before use. Special attention must be given to portable machines.
- Proper switching equipment for shutting down the machine must be provided.
- All current-carrying parts through the portion of the holder must be fully insulated against the maximum voltage encountered to ground.
- Arc welding and cutting cables must be completely insulated, flexible type, and capable of handling the maximum current requirements of the work in progress.
- Shield all arc welding and cutting operations, whenever feasible, by noncombustible or flameproof screens to protect employees and other persons working in the vicinity, from the direct rays of the arc.

### **7.0 Personal Protective Equipment**

See the Personal Protective Equipment Procedure for required PPE during welding and cutting operations.



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## **WORK ZONE PROTECTION/TRAFFIC CONTROL**

### **1.0 Purpose**

The purpose of this operating procedure is to establish procedures and present guidelines for work zone traffic control at job sites within Global Water Resources operations.

### **2.0 Scope**

To establish procedures to protect workers who may be exposed to vehicular traffic while working or near traveled portions of the highway or other areas where there is an exposure to vehicular traffic.

To ensure the safety of the traveling public and pedestrians when traveling through work zone areas on or adjoining roadways.

The procedures outlined herein are based on Part 6 of the Manual on Uniform Traffic Control Devices (USDOT FHWA MUTCD) which contains the national standards for work zone traffic control. While all states must adopt the MUTCD as a minimum standard they are allowed to adopt more stringent regulations. It is important to be aware of specific requirements of the state and local jurisdiction in which operations are being conducted to ensure compliance.

These guidelines pertain to all Global Water Resources employees who are responsible for installing and maintaining temporary work zone traffic control.

These procedures are designed to provide a background of work zone traffic control requirements. For typical application diagrams, please refer to the handbook, “**Work Zone Safety – Guidelines for Construction, Maintenance and Utility Operations**” or other similar documents that have been provided to all Global Water Resources employees who have responsibility for work zone traffic control as part of their assigned duties. A copy of this handbook, or similar materials, may be obtained from your supervisor or your safety training representative.

### **3.0 Responsibilities**

#### **3.1 Supervisors**

It is the supervisor’s responsibility to ensure that all employees comply with the procedures outlined herein and to ensure the necessary equipment and materials are available to ensure compliance.

# **HEALTH & SAFETY PROCEDURES MANUAL** **WORK ZONE PROTECTION/TRAFFIC CONTROL**

## **3.2 Employees**

Employees are responsible for complying with this procedure and to notify supervisors immediately of the need for repair or replacement of equipment and materials.

## **4.0 Definitions**

**High Speed** – Normally considered to be roadways with posted speed limits of 55 MPH or greater.

**Intermediate Speed** – Normally considered to be roadways with posted speed limits of 40-50 MPH.

**Low Speed** – Normally considered being roadways where the posted speed limit is 35 miles per hour (MPH) or less.

**Low Volume** – Normally considered being roadways where the average daily traffic volume (ADT) does not exceed 400 vehicles per day. If the traffic volumes are not known the following rule of thumb can be used.

**Minor Urban Street** – A low-volume, low-speed, two-lane urban street.

**Rule of Thumb** – count the number of vehicles that pass a single reference point over a five (5) minute period. If not more than 3 vehicles pass the reference point in that period, then the road can be considered low volume. Special attention should be given to local, nearby facilities, such as schools, manufacturing plants, etc., that cause special traffic generation. Consideration should also be given as to whether the work zone location is subject to peak-hour traffic increases. Peak hours are usually 7-9 a.m. and 4-6 p.m.

**Urban Street Conditions** – Streets characterized by relatively low speeds, pedestrian activity, intersections, and frequent driveways for businesses and houses. While urban work zones will usually be on a city or town street, a work area does not have to be within a municipality's corporate limits in order to be considered an urban condition.

**Work Duration** – The length of time spent at a temporary traffic control (TTC) area. There are five separate categories identified in the MUTCD

1. **Long-term Stationary** – Work that occupies a location for more than three days.

2. **Intermediate-term Stationary** – Work that occupies a location for more than one daylight period up to three days, or nighttime work lasting more than one hour.

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3. **Short-term Stationary** – Daytime work that occupies a location for more than one hour within a single daylight period.

4. **Short Duration Work** – Work that occupies a location up to one hour.

5. **Mobile Work** – Work that moves intermittently or continuously.

Additional definitions will be contained throughout the General Requirements section of this document.

## **5.0 General Requirements**

### **5.1 Fundamental Principles Of Work Zone Traffic Control**

#### **a. Plan**

- Keep safety of workers in mind
- Keep safety of the traveling public in mind

#### **b. Keep It Moving**

- No abrupt changes
- No unauthorized speed changes
- Provide designated areas for work vehicles
- Get work done as quickly as possible
- Accommodate pedestrians

#### **c. Communicate**

- Use appropriate devices
- Restore existing devices after project completed
- Flaggers used only when absolutely necessary

#### **d. Monitor**

- Trained personnel perform inspections under varying conditions
- Remove or cover conflicting or inapplicable devices
- Repair or replace devices as necessary

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### **e. Maintain Roadside Safety**

- Provide a recovery area
- Store equipment and materials where they won't get hit

### **f. Train**

- Each person who may be involved in establishing temporary traffic control zones should receive training appropriate to the job decisions each individual is required to make. Only those who are trained in safe traffic control practices and have a basic understanding of the principles of the MUTCD should supervise the selection, placement and maintenance of traffic control devices in work zones.

## **5.2 Worker Safety Considerations and Requirements**

Worker safety is equally important as the safety of road users traveling through temporary traffic control zones. In order to ensure the maximum protection of the worker, the following requirements have been established:

- All workers involved with establishing or working in temporary traffic control zones must be trained on the requirements that have been established under this section, including but not limited to techniques, device usage and placement.
- All workers in temporary traffic control zones that are potentially exposed to the risks of moving roadway traffic or construction equipment shall wear high visibility safety apparel in accordance with ANSI standard 107-1999 (revised ANSI 107-2004). All work performed on or adjoining high speed roadways and/or during nighttime operations will require the worker to wear, at a minimum, safety apparel meeting the requirements for Class 2 exposure under the applicable ANSI standard.
- In the activity area, planning is to include minimizing the need for backing-up of construction vehicles. When such maneuvers cannot be eliminated, a worker in the area will be required to direct backing vehicles and equipment so as to ensure the safety of other workers in the area.
- Utilization of law enforcement may be required in specific situations or where mandated by regulation.
- When traffic situations require the utilization of a flagger(s), the individuals assigned to this position will meet the requirements contained in this document.
- Lighting of the work zone must be adequate to provide the workers the opportunity to perform their duties in a safe manner and also be sufficient to give advance notice to approaching vehicles

# **HEALTH & SAFETY PROCEDURES MANUAL** **WORK ZONE PROTECTION/TRAFFIC CONTROL**

## **5.3 Components Of A Temporary Traffic Control Zone**

### **5.3.1 Advance Warning Area**

**Purpose:** Informs drivers what to expect

**Typical Devices:** Signs (typically orange and diamond-shaped) - it may be a single sign, series of signs or a flashing light on a vehicle, depending on the speed, volume and other conditions associated with the work area.

### **5.3.2 Transition Area**

**Purpose:** Traffic is channel or shifted from the normal path to a new path when redirection of the driver's path is required

**Typical Devices:** Cones, drums, vertical panels or other types of "channelizing devices" are typically placed to form a taper. A taper is used in the transition area to gradually redirect traffic away from the area of the roadway that has been closed for work. The length of the taper is determined by the following formulas:

\* Channelizing devices in the Advance warning area are to be spaced no more than twice the distance in feet equal to the posted speed limit in miles/hour. State and local requirements may vary and must be reviewed to ensure compliance.

- Speed Limit 40mph or less-  $L = WS^2/60$
- Speed Limit 45mph or greater-  $L = WS$
- $L =$  Taper length  $W =$  Width of Offset  $S =$  Posted speed limit

**Note:** Channelizing devices in the taper area are to be spaced no more than the distance in feet equal to the posted speed limit in miles/hour. State and local requirements may vary and must be reviewed to ensure compliance.

### **5.3.3 Activity Area**

**Purpose:** To identify the actual area where the work takes place. It comprises the space as well as the traffic space surrounding the work area, and it contains one or more buffer spaces. The Work Space is the portion of the road closed to traffic and set aside for workers, equipment and materials. The Traffic Space is the area of the roadway where traffic is routed away from the actual work. The Buffer Space is the area that separates traffic flow from the work area in advance of the work space. It provides recovery space for errant vehicles.

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**Typical Devices:** Cones, drums, vertical panels or other types of \*\*channelizing devices for short-term work. Barriers are often used for longer-term projects.

\*\* Channelizing devices in the Advance warning area are to be spaced no more than twice the distance in feet equal to the posted speed limit in miles/hour. State and local requirements may vary and must be reviewed to ensure compliance.

### **5.3.4 Termination Area**

**Purpose:** The termination area is used to return traffic to the normal traffic path. The termination area extends from the downstream end of the work area to the END ROAD WORK signs, if posted.

**Note:** Channelizing devices in the Advance warning area are to be spaced no more than twice the distance in feet equal to the posted speed limit in miles/hour. State and local requirements may vary and must be reviewed to ensure compliance.

## **5.4 Traffic Control Devices**

### **5.4.1 Purpose**

Traffic control devices are those things that are approved by MUTCD and used to implement a traffic control plan in the field.

These devices are the objects that the motorist sees and responds to in driving through a traffic control zone.

**Note:** State or local regulations regarding traffic control devices may apply.

## **5.5 Requirements of Traffic Control Devices**

To be effective, a traffic control device should meet five basic requirements:

1. Fulfill a need.
2. Command attention.
3. Convey a clear, simple meaning.
4. Command respect of road users.
5. Give adequate time for proper response.

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### **5.6 Signs**

The Company will utilize temporary traffic control signs that convey both general and specific messages by words or symbols, in accordance with the MUTCD

#### **5.6.1 Types Of Signs With Description**

##### **Regulatory Signs**

- Inform highway users of traffic laws or regulations.
- Can be used only when authorized by the public body or other official having jurisdiction.
- Shall conform to part 2 of the MUTCD.
- If different from signs normally in effect, the existing signs shall be temporarily removed or covered.

##### **Warning Signs**

- Warn motorists of general or specific hazardous conditions on or adjacent to a roadway.
- Diamond shaped with a black legend on an orange background.
- Must be crashworthy.
- For higher speed locations, shall have a size of 48 x 48 in square.
- As an alternative to a specific distance, the word “AHEAD” may be used.
- Urban sign spacing – 4 to 8 times the speed (mph) in feet.
- Rural sign spacing – 8 to 12 times the speed (mph) in feet.

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### **Guide Signs**

Give road users information that will help them in the most simple, direct manner possible.

### **Figure 1 – Typical Warning Signs**

See Figure 1 – Typical Warning Signs

### **5.6.2 Sign Dimensions**

The dimensions of signs outlined below may be increased when necessary for greater legibility or emphasis. Where any part of a roadway is obstructed or closed, advanced warning signs are required to alert traffic well in advance of the work zone. These signs may be used singly or in combination.

- On high speed roadways, they must have a standard size of 48 inches square
- On intermediate speed roadways, a minimum size of 36 inches square may be used for advance warning, provided the minimum letter size is 5 inches.
- On roadways where the speed is low, signs smaller than the standard size, but not less than 24 inches square may be used for warning signs having short word messages or clearly understood symbols.
- Signs shall have a black legend and border on an orange background unless otherwise permitted by regulation.

Fluorescent red-orange may also be used and in some states are required for night time operations. Since this type of material offers higher conspicuity than standard orange, it is the preferred sign material to be used for Global Water Resources operations.

**Note:** These sign dimensions are based on MUTCD Standards and may vary by state and local regulations.



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## **5.6.3 Sign Location**

As a general rule, signs should be located on the right-hand side of the roadway. When special emphasis is needed, signs may be placed on both the left and the right sides of the roadway. Signs should not be on sidewalks, bicycle paths or areas designated for pedestrian or bicycle traffic and should not project more than 4" into pedestrian facilities.

## **5.6.4 Mounting Of Signs**

- Signs may be mounted on portable supports placed within the roadway itself. Posts and portable supports can be utilized. Signs may also be mounted on or above barricades.
  
- In urban areas, signs mounted on posts, must be mounted at a height of at least 7 feet, measured from the bottom of the sign to the elevation of the pavement.
  
- In rural areas, signs must be mounted at a height of at least 5 feet, measured from the bottom of the sign to the elevation of the pavement.
  
- The height to the bottom of a secondary sign mounted below another sign may be 1 foot less than the appropriate height specified for sign mounting in rural or urban areas.
  
- Signs may also be mounted on portable supports such as barricades for short-term, short duration, and mobile conditions. Signs mounted on Type III barricades must not cover more than 50% of the top two rails or 33% of the total area of the three rails. The bottom of signs mounted on barricades or temporary supports shall be no less than 1 foot above the elevation of the roadway.
  
- Unprotected sign systems should be designed to be crashworthy so as to not do damage to occupants of a vehicle if struck.
  
- For the sake of mobility of maintenance operations, a large sign may be mounted on a vehicle stationed in advance of the work or moving along with the work. This may be either the work vehicle, protection vehicle or mounted on a trailer.

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- Because temporary signs are moved frequently, and loaded and unloaded from trucks, special attention must be given to maintaining signs for cleanliness, visibility and correct positioning. Signs that are worn, scratched, bent or have lost a significant amount of retro-reflectivity, should be replaced.

### **5.6.5 Sign Spacing**

Warning signs should be placed at varying distances in advance of the work area, depending on roadway type, conditions, and speed.

Where a series of two or more warning signs is used, the closest sign to the work area should be placed approximately 100 feet away for low –speed urban streets to 1,000 feet away or more for highways with high speed traffic.

**Table 1 - Suggested Advance Warning Sign Spacing**

Road Type	Distance Between Signs (feet)		
	A *	B *	C *
Urban < 35 mph	200	200	200
Urban 40-50 mph	350	350	350
Rural 55 mph	500	500	500
Highway	1000	1600	2600

\* “A” is the distance from transition or point of restriction to the first sign. “B” is the distance between the first and second signs. “C” is the distance between the second and third signs, the third sign being the first sign in the series encountered by the motoring public approaching the temporary traffic control zone.

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### **5.6.6 Illumination And Retro Reflective Signage**

All signs used during the hours of darkness shall be made of retro reflective material or illuminated (street or highway lighting does not meet the requirements for sign illumination).

### **5.6.7 Removal of Signs**

When work is suspended for short periods, all signs that are no longer appropriate must be removed, covered or turned so they are not visible to drivers.

## **6.0 Channelizing Devices**

Channelizing devices serve the following purposes:

- Delineate the elements of the traffic control system
- Protect workers in the temporary traffic control zone
- Guide drivers and pedestrians around the work area
- Provide smooth and gradual traffic movement from one lane to another or onto a bypass or detour
- Reduce the width of the traveled way
- Separate traffic from the work space, pavement drop-offs, pedestrian paths, or opposing directions of traffic.

Channelizing devices should be constructed and ballasted to perform in a predictable manner when inadvertently struck by a vehicle. If struck, they should yield or break away, and fragments or other debris should not penetrate the passenger compartment of any vehicle or create a potential hazard to workers or pedestrians in the immediate area.

The retro reflective material used on channelizing devices must have a smooth, sealed outer surface.

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The name and telephone number of the contractor or agency may be shown on the non-retro-reflective surface of all channelizing devices. The letters and numbers must be non-retro-reflective in color and not over 2 inches (50mm) in height.

Channelizing devices must be maintained and kept clean, visible, and properly positioned at all times. Devices that are damaged and have lost a significant amount of their retro-reflectivity and effectiveness must be replaced.

Typical channelizing devices are (see Figure 1):

- Cones – Daytime and low speed – 18” minimum. Nighttime and high speed – 28” minimum. All 28 to 36 inch cones used for nighttime operations must be reflective equipped with lighting devices. Reflective cones 28 to 36 inches shall have two white reflective bands (1-6” band three to four inches from the top and 1-4” band approximately 2’ below the top band). Cones 36” or greater shall have a minimum of two alternating orange and white reflective stripes (4” to 6” wide) spaced no more than 3 inches apart.

- Tubular Markers- See cones

See Figure 1 – Channelizing Devices

- Vertical Panels –Must be 8” to 12” wide and 24” in height. They shall have orange and white diagonal stripes and be reflective. They shall be mounted with the top a minimum of 36” above the roadway. Panel stripes must be 6” wide for vertical panels 36” or greater and 4” for those less than 36”.Markings shall be alternating orange and white reflective stripes, sloping downward at an angle of 45 degrees in the direction vehicles are to travel.

- Drums – Shall be constructed of lightweight deformable materials and be a minimum of 36” in height and 18” wide with a closed top. Drums shall have a minimum of two orange and two white alternating reflective stripes, with the top stripe being orange. Stripes shall be 4” to 6” in width, with no more than 3” of non-reflective space between stripes. Ballast shall not be placed on top of drum. Metal drums shall not be used.

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- **Barricades** – A barricade is a portable or fixed device having one to three rails with appropriate markings, used to control road users by closing, restricting or delineating all or a portion of the right-of-way. All barricades must be constructed to be crashworthy. Ballast for barricades, usually sand bags, shall not be placed on top of any striped rail. Barricades shall not be ballasted by any non-deformable material such as rocks and concrete. Stripes on barricades shall be alternating orange and white, reflective, and sloping downward at an angle of 45 degrees in the direction road users are to pass. The stripes shall be a minimum of 6” wide except when rail lengths are less than 36” the stripe can be a minimum of 4” wide.

1. Type 1 barricades may be used on conventional roads or urban streets.
2. Type 2 or Type 3 barricades should be used on high speed roadways
3. Type 3 barricades should be used to close a roadway. When barricades are used to close a roadway the stripes should slope downward in the direction toward the road users must turn. Where both right and left turns are available, the stripes should slope downward in both directions starting at the center of the barricade. Where no turns are intended, the stripes should slope downward from the outside of the barricades to the center.

- **Warning Lights**

- **Direction Indicator Barricades** – Shall consist of a One Direction Large Arrow sign mounted above a diagonal striped reflective rail. The sign shall be black on an orange background (24”x 12”). The bottom rail shall be 24” wide by 8” high. The striping shall be alternating orange and white reflective and pointing downward at a 45 degree angle in the direction the road users are to pass.

### **7.0 Other Traffic Control Devices**

State and local requirements and site specific traffic control plans may require the use of additional equipment. The following are additional traffic control devices that may be required.

**Protection Vehicle (a.k.a. shadow vehicle)** – Is a vehicle used to protect the worker from being directly hit by an errant vehicle. It is normally placed at a sufficient distance in advance of the workers and or equipment being protected in the work zone. Normal recommended distance is 75’ to 150’ depending on posted speed. A protection vehicle should be equipped with an arrow panel. It can also be utilized for mobile operations.

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- **Truck Mounted Attenuator (TMA)** – Is basically a crash cushion, which may be permanently or temporarily mounted to the protection vehicle, that is utilized to minimize the impact on the driver of an errant vehicle, that has entered the work zone.

### **8.0 Lights and Arrow Panels**

Warning lights should be used in fog or snow areas, severe roadway curvatures, and usually cluttered environments. Flashing warning lights may be placed on channelizing devices used singly or in groups to mark a spot condition.

- **Type A Warning Light** -Low intensity flashing (night) warns of hazards at night only, not for delineation
- **Type B Warning Light**- High intensity flashing (day/night) warns of special hazards day or night, not for delineation
- **Type C Warning Light**- Low intensity steady burn (night) delineates edge of road on tapers, lanes, etc.

### **9.0 Arrow Panels**

- Arrow panels are signs with a matrix of lighted elements mounted on a vehicle or trailer that displays a large directional arrow to approaching motorists and will provide additional warning and directional information to assist in merging and controlling road users.
- An arrow panel is a supplemental device and should be used in combination with appropriate signs, barricades, and/or other traffic control devices.
- Lighting elements should be yellow, recessed or hooded, able to be dimmed 50% at night, with a flash rate of between 25 and 40 FPM.
- Trailer mounted panels should be a minimum of 7 ft from bottom to road. When on a vehicle it should be as high as practical.

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- Types of arrow panels (see Figure 4)

1. **Type A** – Low speed urban streets, 48” x 24”, 12 elements minimum, 1/2-mile legibility distance.
2. **Type B** – Moderate speed, maintenance or mobile operations, 60” x 30”, 13 elements minimum, ¾ mile legibility distance.
3. **Type C** – High speed, high volume traffic, 96” x 48”, 15 elements minimum, 1-mile legibility distance.
4. **Type D** – On vehicles, arrow shaped, 48” x 24”, 12 elements, 1/2-mile legibility distance.

Figure 4 – Arrow Panels, Modes Of Operation

- Application – modes of operation

1. Caution mode will be used for shoulder work, work near the shoulder or closure of one lane on two-lane, two-way road.
2. Arrow or chevron mode shall be used only for lane closures on multilane roadways.
3. A vehicle displaying an arrow shall be equipped with rotating lights or strobe lights.
4. Must be non-reflective black and mounted on a vehicle, trailer or other suitable support
5. Must be used to shift traffic laterally more than one lane.

## **10.0 Flagger Description and Procedures**

A flagger is an individual who provides temporary traffic control in traffic control zones. A determination as to whether flaggers are needed shall be made by a competent person who is familiar with the work zone and the conditions that are encountered. Some states require flaggers to be certified by the state and certain state and municipalities may require the use of police officers to direct traffic in these areas, so local regulations must be consulted.

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Because flaggers are responsible for public safety and make the greatest number of public contacts of all roadway workers, they should have the following minimum qualifications:

- Sense of responsibility for the safety of the public and workers
- Adequate training in safe temporary traffic control practices
- Average intelligence
- Good physical condition, including sight, mobility and hearing
- Mental alertness and the ability to react in an emergency
- Courteous but firm manner
- Neat appearance
- Ability to receive and communicate instructions clearly
- Ability to control signaling devices to provide guidance to drivers
- Ability to understand and apply safe traffic control practices
- Ability to recognize dangerous traffic situations and warn workers

**Flaggers shall wear high visibility clothing.** For daytime and nighttime activities flaggers shall wear safety apparel meeting the ANSI Standard 107-1999 (since revised to ANSI 107-2004) Class 2 Risk Exposure. The background material shall be fluorescent orange-red or yellow-green with appropriate retro reflective material being orange, green, yellow, white, silver, yellow-green or a fluorescent version of these colors. The safety apparel shall be designed to clearly identify the wearer as a person and must be visible at a minimum distance of 1,000 feet.



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## **10.1 Hand Signaling Devices**

### ***STOP/SLOW Paddles***

- STOP/SLOW paddle should be the primary and preferred hand signaling device.
- STOP/SLOW PADDLE must be octagonal on a rigid handle, must be at least 18 inches wide with letters at least 6 inches high and should be fabricated from light semi-rigid material.
- Background of the STOP face must be red with white letters and border. The background of the SLOW face must be orange with black letters and border.
- When used at night the STOP/SLOW paddles must be reflective

## **Flags**

- Use of flags should be limited to emergency situations. Flags, when used, must be a minimum of 24” square, made of a good grade of red material and securely fastened to a staff about 36 inches long.
- When used at nighttime, flags should be retro reflective red.

## **10.2 Procedures**

### **Stopping Traffic**

- **Paddle** – The flagger shall face oncoming road users and direct the STOP paddle face toward traffic in a stationary position, with his/her arm extended horizontally away from the body. The free arm shall be held with the palm of the hand held above the shoulder facing traffic.
- **Flag** – The flagger shall face oncoming road users and extend the flag horizontally across the road user’s lane in a stationary position so the flag is fully visible to the road user. The free arm shall be held with the palm of the hand held above the shoulder facing traffic.

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### **Directing Traffic To Proceed**

- **Paddle** – The flagger shall face oncoming road users and direct the Slow paddle face toward traffic in a stationary position, with his/her arm extended horizontally away from the body. The flagger shall motion with the free hand to proceed.
- **Flag** – The flagger shall stand parallel to the flow of traffic, lower the arm and flag from the view of the road user, and shall motion with the free hand for traffic to proceed. Flags shall not be used to signal traffic to proceed.

### **Alert Or Slow Traffic**

- **Paddle** – The flagger shall face oncoming road users and direct the Slow paddle face toward traffic in a stationary position, with his/her arm extended horizontally away from the body.
- **Flag** – The flagger shall face oncoming road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down. The free hand will remain down at the side of the body.

### **10.3 Flagger Stations**

Flagger stations should be located far enough in advance of the work space so that approaching road users will have sufficient distance to stop before entering the work space.

Flagger stations should be preceded by proper warning signs. At night, flagger stations should be illuminated.

Floodlights used to illuminate flagger stations must not create a disabling glare for approaching road users.

Flaggers should:

- Stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users.
- Only stand in the lane being used by moving road users after road users have stopped.

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- Be clearly visible to the first approaching road user at all times.
- Be visible to other road users
- Be stationed sufficiently in advance of the workers to warn them of approaching danger by out-of-control vehicles.
- Stand alone, never permitting other workers to congregate around the flagger station.

## **11.0 Typical Application Diagram (TAD) and Selection Criteria**

Generally, the longer the duration, the closer to traffic and the higher the traffic speed and/or volume, the more complex the traffic controls.

To view typical application diagrams for traffic control, please refer to the handbook, “**Work Zone Safety – Guidelines for Construction, Maintenance and Utility Operations**” or other similar documents that have been provided to all Global Water Resources employees who have responsibility for work zone traffic control as part of their assigned duties. A copy of this handbook may be obtained from your supervisor or your loss control representative.

Table 2 defines selection criteria to refer to when determining a TAD to model for your particular temporary traffic control zone.

**Table 2 – Typical Application Diagram (TAD) Use and Selection Criteria**

WORK DURATION	WORK LOCATION	ROADWAY TYPE
<b>Long Term Stationary</b> More than 3 days  <b>Intermediate Term Stationary</b> More than one daylight period up to 3 days, or more than 1 hour nighttime  <b>Short Term Stationary</b> 1 to 12 hours daytime  <b>Short Duration</b> 1-60 minutes (1 hour)  <b>Mobile</b> Work that moves intermittently or continuously	<b>Outside the shoulder</b> 15 feet from edge of road on uncurbed roadways OR 2 feet from edge of curbed roadways, including all equipment, personnel and work vehicles <b>On the shoulder-no encroachment</b>  <b>On the shoulder-minor Encroachment</b>  <b>Within the median</b>  <b>Within the traveled way</b>	<b>Urban Streets</b> Low speeds; low volume  <b>Urban Arterial Roads</b> Los speeds; high volume  <b>Intersection</b> Low speeds; high volume  <b>Rural Two-lane Roadways</b> High speeds; low volume  <b>Rural/Urban Multilane</b> High speeds; high volumes  <b>Freeways</b> High speeds; high volumes

# **HEALTH & SAFETY PROCEDURES MANUAL** **WORK ZONE PROTECTION/TRAFFIC CONTROL**

## **12.0 Installation and Removal Procedures**

### **12.1 Job Pre-Survey**

- A suitable plan for guarding the work zone should be developed before work is begun.
- Be sure to consider the motorist and pedestrian as well as the workers, point of view when establishing the traffic control plan.
- If you have questions, consult your supervisor and/or state or local authorities.
- Use a checklist for reference when selecting, installing and removing devices.
- Notify authorities if necessary

### **12.2 Installation**

- Drive through the proposed work zone.
- Park work vehicle in a safe area but not in the propose work zone.
- Set up advance warning signs starting with the initial sign the motorist will see.
- Set out channelizing devices for the taper and buffer space laterally along the curb or edge of roadway.
- Set up taper, then buffer, by walking each channelizer into position in the while watching traffic upstream.
- Pull vehicle into work zone.

### **12.3 Removal**

- Remove in reverse order of installation.

**HEALTH & SAFETY PROCEDURES MANUAL**

**Forms Appendices**

**HEALTH & SAFETY PROCEDURES MANUAL**

**ACKNOWLEDGMENT OF RECEIPT OF SAFETY  
MANUAL**

I acknowledge receipt of the Global Water Resources Safety Manual. I have read and understand the Safety Manual. I understand that compliance with this policy is my responsibility as an Employee in this company.

This policy was distributed and explained to me by my supervisor on the date shown below and I understand my responsibilities with regard to compliance with this policy.

Name (Please Print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **HEALTH & SAFETY PROCEDURES MANUAL** **COMPUTER WORKSTATION ACCESSORIES**

Accessory	Description	(Company Name) Order Number
Adjustable Chair (Average size individual)	Task chair with adjustable seat and armrest height, back recline (tile) and lumbar support	XXXX Chair XXXX Model Number: 543-4223
Adjustable Chair (Larger stature individual)	Task chair with adjustable seat and/armrest height, back recline (tile) and lumbar support	XXXX Chair XXXXXX Model Number: 452-94431BW
Adjustable Chair (with sliding seat pan)	Task chair with adjustable seat and/armrest height, back recline (tilt) and lumbar support with sliding seat pan	XXXX Chair 453-54431WD
Adjustable Executive Chair	Task chair with adjustable seat and/armrest height, back recline (tilt) and lumbar support	XXXX Model Number: 458-1344 HU Must be RVP or Attorney
Adjustable Executive Chair	Task chair with adjustable seat and/armrest height, back recline (tilt) and lumbar support	XXXX Model Number: 458-1345HU Must be RVP or Attorney
Lumbar back support pillow	Pillow to provide support to back	Acco International
Footrest	Tilting footrest with position lock – 19” x 13”	Boise No.: E604603 Eldon
Footrest	Adjustable footrest – 19”x12”x15”	Boise No.: E648106 Fellowes
Wrist Rest	Gel Wrist Rest	Boise No.: 691737 Fellowes
Adjustable Wrist Rest	Gel Wrist Rest that offers height and forward/negative tilt adjustment	Boise No.: 691735 Fellowes
Mouse Wrist Rest with Pad	Mouse Pad with gel wrist rest	Boise No.: 691741 Fellowes
Mouse Pad	Computer Mouse Pad – 8” x 10”	
Mouse	Input device with 2 button scroll	Microsoft Intellimouse Ver 3.0

**HEALTH & SAFETY PROCEDURES MANUAL**  
**CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

**Facility:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**1. Injury / Illness History**

Provide the following injury and illness information for the past three calendar years as reported on your OSHA Form 200 or 300:

20\_\_\_\_\_ 20\_\_\_\_\_ 20\_\_\_\_\_

a. Total number of hours worked: \_\_\_\_\_

b. Total number of OSHA Recordable Injuries/  
illnesses \_\_\_\_\_

c. OSHA Recordable Injury and Illness Rate(1): \_\_\_\_\_

d. Number of Lost Time Injuries/Illnesses  
(Days away from work and restricted duty) \_\_\_\_\_

e. Lost Workday Case Incident Rate(1): \_\_\_\_\_

f. Number of Fatalities \_\_\_\_\_

(1) Calculated **as number of cases x 200,000**  
total hours worked

*Include Copies of your OSHA logs for the last three years*

**HEALTH & SAFETY PROCEDURES MANUAL**  
**CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

**2. Workers' Compensation Information**

a. Name and address of current Workers' Compensation insurance carrier:

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b. Provide your Workers' Compensation Experience Modification Rating (EMR) for the past three calendar years.

20\_\_\_\_ : \_\_\_\_\_ 20\_\_\_\_ : \_\_\_\_\_ 20\_\_\_\_ : \_\_\_\_\_

*Provide a letter from your workers' compensation carrier confirming the above.*

**3. Regulatory Citations**

Have you received citations from any regulatory agency for safety or environmental matters in the past three years?      Yes      No

*If yes, please attach copies*



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

### **4. Safety Program Information**

- |   |       |        |             |
|---|-------|--------|-------------|
| a. Do you have a written health and safety program?<br>(If yes, provide an electronic copy) | Yes   | No     | N/A         |
| b. Do you have a written safety policy?<br>(If yes, provide an electronic copy)             | Yes   | No     | N/A         |
| c. Do you have a written drug and alcohol policy?<br>(If yes, provide a copy)               | Yes   | No     | N/A         |
| d. Do you have a written employee disciplinary policy?<br>(If yes, provide a copy)          | Yes   | No     | N/A         |
| e. Do you conduct new employee safety orientations?   | Yes   | No     | N/A         |
| f. Do you hold pre-job safety orientations?   | Yes   | No     | N/A         |
| g. Do you conduct Daily Job Hazard Analysis?<br>(If yes, provide a sample)                  | Yes   | No     | N/A         |
| h. Do you hold regular “tool box” safety meetings?  | Yes   | No     | N/A         |
| a. If so, how often?  | Daily | Weekly | Monthly     |
|   |       |        | Other _____ |
| i. Do you conduct daily job hazard analysis for all tasks?                                  | Yes   | No     | N/A         |
| j. Do you conduct field safety inspections?   | Yes   | No     | N/A         |
| k. Do you have written personal protective equipment requirements?                          | Yes   | No     | N/A         |
| l. Are your employees trained in the use of respirators?                                    | Yes   | No     | N/A         |
| m. Do you have a written respiratory protection program?                                    | Yes   | No     | N/A         |

## **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

n. Do you have a written hazard communication program?	Yes	No	N/A
o. Do you provide Material Safety Data Sheets (MSDSs) for your employees and clients at the job site?	Yes	No	N/A
p. Do you have a formal accident investigation system?	Yes	No	N/A
q. Do you complete and file written accident reports?	Yes	No	N/A
r. Do you train employees in first aid and CPR?	Yes	No	N/A
s. Do you have written emergency plans?	Yes	No	N/A
t. Do newly hired or promoted foremen receive specialized safety training?	Yes	No	N/A
u. Is safety used as a criteria in performance reviews of supervisors?	Yes	No	N/A
v. Do employees receive 10-hour (OSHA) construction safety training?	Yes	No	N/A
w. Have your employees been formally trained in the following areas:			
I. Fall Protection	Yes	No	N/A
II. Process Safety Management	Yes	No	N/A
III. Scaffolding	Yes	No	N/A
IV. Lock-Out/Tag-Out	Yes	No	N/A

**5. Describe safety training provided to your on-site supervision:**

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**HEALTH & SAFETY PROCEDURES MANUAL**  
**CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

**6. Do you plan on having a full time Site Safety Officer (SSO) on site?**

Yes

No

If yes, list name and safety qualifications:

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If no, who will have responsibility for safety and what are their qualifications?

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**Who will be your competent person for safety matters? (Include fall protection and scaffolding. May be different individuals). List their qualifications.**

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**7. Do you have a health and safety department?**

Yes

No

**HEALTH & SAFETY PROCEDURES MANUAL**  
**CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

Name of Department Head: \_\_\_\_\_

Title: \_\_\_\_\_

Phone #: \_\_\_\_\_

**8. Are formal audits conducted at job sites?**                      Yes                      No

a. Frequency:

b. Provide a copy of audit form used.

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Phone: \_\_\_\_\_

Reviewed by:

\_\_\_\_\_  
GLOBAL WATER RESOURCES Title (Operations)

\_\_\_\_\_  
GLOBAL WATER RESOURCES Title (Health and Safety Department)

# **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR HEALTH & SAFETY QUESTIONNAIRE**

General Qualification criteria (may vary based on type and scope of work)

- Experience Modification Rating:  $\leq 1.0$
- OSHA Incidence Rates: At or below industry average based on SIC code
- Individual designated with safety responsibility, review of qualifications.
- Review of written health and safety programs and training programs.
- Regulatory Compliance history – Review of OSHA citation history – qualitative evaluation

# **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR SAFETY ORIENTATION CHECKLIST**

I, \_\_\_\_\_, as an authorized representative of \_\_\_\_\_ (Contractor), acknowledge having received safety orientation information from Global Water Resources on the requirements noted below for Outside Contractors (OC). I understand the information that has been provided, and further understand that failure to comply with Occupational Safety & Health Administration (OSHA) requirements will be a breach of the agreement with Global Water Resources and will be cause for Global Water Resources to suspend performance of the outside contract under this agreement.

Plant: _____ District: _____					Initials	
Project: _____		YES	NO	N/A	OC	CO.
<b>Section I. Hazard Communication (29 CFR 1910.1200)</b>						
1.	Location of written program/MSDS book					
2.	Provided with an explanation of the labeling system					
3.	Informed of emergency procedures					
<b>Section II. Permit Continued Space Entry (29 CFR 1910.146)</b>						
1.	Advised that permit space entry must comply with OSHA Standard					
2.	Advised of the hazards contained within the permit space					
3.	Advised of precautions taken for employees who are working in or near the space to be entered					
4.	Combine entry operations coordinated with contractor					
5.	Post entry operational hazard conference field					
<b>Section III. Process Safety Management (29 CFR 1910.119)</b>						
1.	Contractor safety programs/employee training evaluated					
2.	Contractor informed of potential hazards of fire, explosion and toxic releases					
3.	Contractor advised of Emergency Action Plan					
4.	Contractor informed of periodic work performance evaluation procedures					
5.	System of restricted access to chemical process area implemented					
6.	Contractor informed of illness/injury requirements and reporting procedures					

## **HEALTH & SAFETY PROCEDURES MANUAL** **CONTRACTOR SAFETY ORIENTATION CHECKLIST**

Plant: _____ District: _____					<b>Initials</b>	
Project: _____		<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>OC</b>	<b>CO.</b>
<b>Additional Recommendations</b>						
1.	Contractor provided with an overview of Global Water Resources safety rules					
2.	Contractor informed of hazardous chemical clean-up responsibility					
3.	Contractor informed of special requirements of Federal, State, and local laws					
4.	Contractor informed of responsibilities regarding employee conduct					

\_\_\_\_\_  
Authorized Contractor Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Authorized Global Water Resources Representative

Date: \_\_\_\_\_





## **HEALTH & SAFETY PROCEDURES MANUAL**

### **DEFENSIVE DRIVING RULES**

1. Vehicles leased or owned by the company are to be used only for company business.
2. Drivers assigned vehicles are responsible for timely and routine maintenance.
3. All drivers are required to abide by all federal, state and local motor vehicle regulations, laws and ordinances.
4. All fines, defense costs and other legal penalties arising out of ticketed offenses are the responsibilities of the driver.
5. Drivers are prohibited from smoking in company vehicles
6. Prior to starting a vehicle, drivers are required to inspect the vehicle exterior and the area around the vehicle. This includes checking tires, leaks, body condition and clearances to other vehicles and objects. Any defects or concerns must be reported immediately.
7. Drivers are responsible to ensure that all required documents are in the vehicle (registration, insurance card and accident reporting form).
8. A driver may not operate a vehicle at any time when his/her ability is impaired, affected, or influenced by alcohol, illegal drugs, medication, illness, fatigue or injury.
9. No driver may have or permit possession of alcohol or illegal drugs in a vehicle being used for business purposes.
10. The driver and all occupants are required to wear safety belts when operating or riding in a vehicle. The driver is responsible to ensure all passengers are wearing their safety belts at all times.
11. Drivers shall not pickup hitchhikers.
12. Drivers shall not accept direct payment for carrying passengers or materials except as directed by your supervisor.
- 13 . Drivers shall not push or pull another vehicle or tow a trailer without authorization.

**HEALTH & SAFETY PROCEDURES MANUAL**  
**DEFENSIVE DRIVING RULES**

14. Drivers shall not transport flammable liquids and gasses unless a DOT or UL approved container is utilized, and only then in limited quantities and only when necessary.

15. Drivers shall not assist disabled motorists or accident victims beyond the level of their medical training: EMT, CPR, Basic First Aid etc. If a driver is not qualified to provide the above services, he/she must restrict his/her assistance to calling the proper authorities.

16. All accidents, vehicle problems or defects shall be reported immediately to your supervisor, including completing and forwarding any forms required by your supervisor.

17. Drivers are required to notify their supervisor of any tickets, accidents or other violations they have received while driving. Notifications must be as soon as reasonably possible but in no way, later than the next scheduled driving duty to be performed.

18. Drivers shall sign a statement acknowledging receipt, review, and understanding of these safe driving rules. Failure to practice these rules can result in disciplinary measures up to and including dismissal.

Authorized Driver's

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## HEALTH & SAFETY PROCEDURES MANUAL

### CONFINED SPACE ENTRY PERMIT

If the permit-required confined space cannot be reclassified or an atmospheric hazard cannot be controlled by ventilation alone, employees must enter under the full permit system. Complete Section 5 on the reverse side of this form.

<b>SECTION V.</b>		<b>Full Permit Procedures</b>			
Permit Begins	Date:	Time:	Permit Ends	Date:	Time:
Entrant(s):		Signatures:			
Attendant:					
Entry Supervisor (if other than Attendant):					
Hazard Checklist		(Check Yes or No for each hazard)			
Hazard	Yes	No	If Yes, how is hazard controlled		
Oxygen deficient or enriched atmosphere					
Flammable/combustible vapors or gas					
Airborne combustible dusts					
Other toxic gases or vapors					
Mechanical hazard					
Chemical hazard					
Electrical hazard					
Entrapment or engulfment hazard					
Other (specify)					
<b>Required Safety Equipment</b>					
<b>Equipment</b>	<b>Yes</b>	<b>No</b>	<b>Equipment</b>	<b>Yes</b>	<b>No</b>
Warning signs, barriers, or barricades for openings			Head protection		
Access (ladders or other)			Eye protection		
Lighting			Respiratory Protection		
Ventilation			Hand protection		
GFCI or other electrical shielding			Fall protection		
Other (Specify)			Foot protection		
Method of communication (check one)		Voice	Radio	Other (Specify)	

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **CONFINED SPACE ENTRY PERMIT**


(CONTINUED)

<b>Hot Work Permit</b>					
(Required when using any open flame or spark producing device)					
Hot Work Permit required?	Yes	No	Fire Watch required?	Yes	No
<b>Method of Rescue of Entrants</b>					
Retrieval System (tripod, winch, full body harness)	Yes	No	Contract Rescue Service	Yes	No
Emergency Response Agency			Contact No.		
<b>AUTHORIZATION TO BEGIN ENTRY OPERATION</b>					
I certify that all necessary precautions have been taken and that the authorized entrants have been briefed on the purpose of entry, the tasks to be performed and the safeguards or procedures necessary to follow for this entry.					
Attendant or Entry Supervisor Signature			Date		Time
<b>Cancellation of Permit</b>					
Attendant or Entry Supervisor Signature			Date		Time
Forward Cancelled permit to the Loss Control Department					



## HEALTH & SAFETY PROCEDURES MANUAL

### ERGONOMIC JOB ANALYSIS

<b>Job Name: Sew Uppers</b>			<b>Employer: Quality Shoe Company</b>		<b>Page 1 of 1</b>	
<b>Department: Assembly</b>			<b>Employee Name: Jane Smith</b>			
<b>Work Cycle Duration: 20 Seconds</b>			<b>Date/Time: 5/5/95, 10:30 a.m.</b>			
#	Task	#	Step	Risk Factors	Possible Solutions	
1	Sew elastic & liner together for shoe upper	1	Get unit from the stack (left hand)	Reaching – left arm. Bending when stack is low. Twisting	Place material within reach envelope in a modified parts bin	
		2	Place unit over sewing mount (both hands)	Radial deviation (wrist turned toward thumb).		
		3	Push through sewing machine (both hands)	Elbow abduction and flexion (elbows raised and pushed forward)	Adjust work height of sewing machines.	
		4	Turn knob to lift needle (left hand)	Ulnar deviation (wrist turned toward little finger)	Investigate pneumatic control	
		5	Cut thread with scissors (right hand)	Mechanical pressure. Pinch grip.	Improve scissor design with padded handle	
		6	Discard unit into finished bin (left hand)	Reaching – left arm. Twisting.	Place material within reach envelope in a modified parts bin.	

The following checklists are examples that some companies have found to be useful tools for guiding safety personnel, safety committee members, and members of ergonomic task forces through an evaluation of workstations and/or work processes.

The use of the checklists does require a basic level of understanding of ergonomics and the risk factors associated with manual material handling, repetitive motion job tasks, and improper workstation design. The desired (i.e., lower ergonomic risk factors) responses to the questions may be either Yes or No in each case, so the analyst should have some ergonomic skills as described above.

# **HEALTH & SAFETY PROCEDURES MANUAL** **ERGONOMIC RISK ASSESSMENT CHECKLIST**

## **Checklist 1 – Manual Handling Of Loads**

Department: \_\_\_\_\_ Date: \_\_\_\_\_

Workstation: \_\_\_\_\_ Analyst's Name: \_\_\_\_\_

		<b>YES</b>	<b>NO</b>	<b>N/A</b>
1	Are there long travel distances			
2	Do any walkways have obstructions or abrupt gradient variations			
3	Is the walking surface strewn with water or other material			
4	Is appropriate material handling equipment available to the employee			
5	Are large push/pull forces needed to get started			
6	Is the push/pull on an incline			
7	Can the weight of the load be reduced			
8	Can the frequency of lifts be reduced			
9	Can the distance between the object and body be reduced			
10	Do the lifts originate below waist height			
11	Can the distance (vertical) of lifting/lowering be minimized			
12	Do the objects being handled have inadequate handholds			
13	Is the hand separation greater than 30 inches			
14	Does the worker demonstrate appropriate body mechanics while performing the tests			
	<b>SPECIFIC ISSUES</b>			
	Do the lifted loads comply with NIOSH listing analysis			



# **HEALTH & SAFETY PROCEDURES MANUAL** **ERGONOMIC RISK ASSESSMENT CHECKLIST**

## **Checklist 2 – Work Practices**

Department: \_\_\_\_\_ Date: \_\_\_\_\_

Workstation: \_\_\_\_\_ Analyst's Name: \_\_\_\_\_

		<b>YES</b>	<b>NO</b>	<b>N/A</b>
1	Are objects held for long periods of time			
2	Does the operator work in one posture for extended periods of time			
3	Is the worker required to either sit or stand all the time			
4	Do controls cause the operator to assume unnatural postures			
5	Does the task require the frequent use of hand tools			
6	Is the operator subjected to rapid temperature changes			
7	Are there visual tasks requiring rapid eye movement			
8	Is the fundamental cycle time less than 30 seconds and the job(s) collectively performed for more than 50% of the work hours			
9	Are the elbows elevated above chest height			
10	Are sitting reaches in excess of 16 inches			
11	Are standing reaches in excess of 18 inches			
12	Are reaches below seat or waist level			
13	Does the operator have to reach behind the frontal plane of the body			
14	Does the task contain pounding/tapping requirements with the hand			
15	Does the task require twisting or snapping motions			
16	Is the wrist bent downward or bent upward			
17	Is the wrist bent towards the thumb or little finger			
18	Does the job require pinch grips to be used			

**Notes a. If #8 is a “YES” then the job is characterized as being repetitive.**

**b. Points 9 – 18 are very important for repetitive tasks.**

## **HEALTH & SAFETY PROCEDURES MANUAL** **ERGONOMIC RISK ASSESSMENT CHECKLIST**

### **Checklist 3 – Workstation**

Department: \_\_\_\_\_ Date: \_\_\_\_\_

Workstation: \_\_\_\_\_ Analyst's Name: \_\_\_\_\_

		<b>YES</b>	<b>NO</b>	<b>N/A</b>
1	Does the work surface appear to be too high or too low			
2	Is the worker required to operate foot pedals while standing			
3	Are dials and controls poorly labeled			
4	Are controls difficult to operate			
5	Is the current layout a hindrance to cleaning and maintaining			
6	Does the workplace appear unnecessarily cluttered			
7	Can vibrations be felt by any body part			
8	Are there any sharp edges that may make body contact			
9	Are hot surfaces insulated			
10	Is noise a problem			
11	Does lighting appear inadequate			
12	Is glare a hindrance			
13	Could the workstation use both sit and stand capabilities			
14	Are friction surfaces worn out			
15	Are temperatures uncomfortably hot or cold			

# **HEALTH & SAFETY PROCEDURES MANUAL** **ERGONOMIC RISK ASSESSMENT CHECKLIST**

## **Checklist 4 – Workstation**

Department: \_\_\_\_\_ Date: \_\_\_\_\_

Workstation: \_\_\_\_\_ Analyst's Name: \_\_\_\_\_

		<b>YES</b>	<b>NO</b>	<b>N/A</b>
1	Could the worker use more leg room			
2	Is the worker required to use a non-adjustable chair			
3	Could footrests be accommodated			
4	Could armrests be accommodated			
5	Does the chair have a support other than a five-point base			
6	Do workers frequently sit on the front edge of their chairs			
7	Do workers frequently attempt to cushion their seats			
<b>HAND TOOLS</b>				
1	Are tools in excess of five pounds being used without supports			
2	Can vibrations be felt in these tools			
3	Do the handles dig into the hands			
4	Do pistol grip tools require activation with the index finger only			
5	Could tools be bent (e.g., "Bennet's Bend" in scissors) instead of the wrist			
6	Do all employees use tools with the same handle size			
7	Are bulky or tight gloves used			
8	Could the palm or finger be pinched			
9	Is the grip span less than 2 inches or greater than 2.5 inches			

# HEALTH & SAFETY PROCEDURES MANUAL ERGONOMIC RISK ASSESSMENT CHECKLIST

## ERGONOMIC WORKSTATION EVALUATION

**Information:**

Date Evaluation Requested:		Evaluation Date:			
Associate Name:		Title:		Ext:	
Department:		Date of Hire:		GL Acct. Code:	
Manager's Name:		Phone Jack #:		Bldg. & Floor:	
PC Usage:	100% - 75%	74% - 50%	49% - 25%	Less than 25%	

**Ergonomic Concern:**

(ES) Eye Strain	(BP) Back Pain	(HA) Headaches	(WP) Wrist Pain
(FP) Finger Pain	(NS) Neck Strain	(SS) Shoulder Pain	(WK) Work Station

**Ergonomic Concerns Details:**


**Findings:**


**Ergonomic Actions/Recommendations:**

(MA) Monitor Adjustment	(CH) Copy Holder	(TL) Task Lamp	(SC) Anti-glare Screen
(BS) Back Support	(LS) ½ Lumbar Support	(WR) Wrist Rest	(CA) Chair Adjustment
(CI) Chair Installation Upgrade	(HS) Headset	(SA) Work Surface Adjustment	(FR) Footrest
(KT) Keyboard/ Mouse Tray	(SK) Split Keyboard	(TB) Trackball/ Alternative Mouse	(OT) Other

**Details Actions/Recommendations:**


**Date & Type of Ergonomics Accessories Installed:**


**Evaluator Name:**

--

**Follow-up Date:**

--

**HEALTH & SAFETY PROCEDURES MANUAL**  
**COMPETENT PERSON EXCAVATION SAFETY**  
**CHECKLIST**

This permit (one permit per hole dug) checklist must be filled out by a competent person before employees are allowed entry into an excavation. Give completed form to your supervisor at end of shift.

**COMPETENT PERSON** \_\_\_\_\_ **TIME:** \_\_\_\_\_  
(signature)

**DATE:** \_\_\_\_\_ **LOCATION:** \_\_\_\_\_ **HOLE DEPTH:** \_\_\_ ' \_\_\_ ”

**A) LOCATES**

..Underground utility(s) locations have been requested and identified. Dig # \_\_\_\_\_

**B) TRAFFIC CONTROL**

.. Motorist warning signs have been placed in/along street

.. Traffic cones are set out in street in appropriate locations

.. Flagmen are being utilized (when necessary)

**C) SOIL TYPE**

.. (Type A)

.. (Type B)

.. (Type C)

**HEALTH & SAFETY PROCEDURES MANUAL**  
**COMPETENT PERSON EXCAVATION SAFETY**  
**CHECKLIST**

**D) SOIL CLASSIFICATION**

- 1. Estimate Range of Particle**
  - .. A. Fine Grained = Cohesive Material
  - .. B. Coarse Grained = Sand & Gravel
  
- 2. Observe Soil As Excavated**
  - .. A. Clumps = Cohesive Material
  - .. B. Breaks Up Easily = Granular Material
  
- 3. Observe Open Excavation**
  - .. A. Layered Soils
  - .. B. Layers Sloped Toward Excavation
  - .. C. Fissures – Excavation Side
  - .. D. Fissures – Top of Excavation
  
- 4. Water Condition**
  - .. A. Surface Water
  - .. B. Run Off
  - .. C. Seeping From Sides
  - .. D. Ground Water
  - .. E. None
  
- 5. Vibration Present**
  - .. A. General Area
  - .. B. In Excavation
  - .. C. None

**E) CAVE-IN PROTECTION (excavations 5' or deeper, or less than 5' if potential for cave-in)**

- .. Sloping is being performed...angle of slope is  $\frac{3}{4}$ -1 (A), 1-1 (B), 1.5-1 (C)
  
- .. Benching is being performed (not allowed in Type C soil)
  
- .. Shoring equipment (at least 2 sets) is being used (manufacturer's tabulated data is at jobsite)
  
- .. Approved plywood (3/4") is being used (if use of plywood is supported by tabulated data)

**HEALTH & SAFETY PROCEDURES MANUAL**  
**COMPETENT PERSON EXCAVATION SAFETY**  
**CHECKLIST**

- .. Trench box is being used (manufacturer's data is at jobsite)
- .. Trench box is stable from horizontal movement and is relatively even
- .. Trench boxes and/or shoring equipment are less than 2' from the bottom of hole
- .. Surface encumbrances and structures (ex: street lights, signs, poles) are supported

**F) EXCAVATION INFORMATION**

Depth: \_\_\_\_\_ Width: \_\_\_\_\_ Length: \_\_\_\_\_

Soil Classification: \_\_\_\_\_ Protective System Needed: .. Yes .. No

Type of Protective System(s) Used: \_\_\_\_\_

Sloping or Shoring is required at 4 feet or more in depth.

Note: Regardless of Excavation Depth, trench protection is required if workers situate themselves in a vulnerable position within the trench.

**G) EXCAVATION QUESTIONS**

Call Placed and Area Marked? .. Yes .. No .. NA

Are Adjacent Structures/Utilities Stabilized or Protected? .. Yes .. No .. NA

Is Excavation a Confined Space? .. Yes .. No .. NA

If Confined Space, Is Constant Air Monitoring Needed? .. Yes .. No .. NA

All Necessary Equipment on Site? .. Yes .. No .. NA

Has Traffic Control Provisions Been Made? .. Yes .. No .. NA

Comments: \_\_\_\_\_  
\_\_\_\_\_

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**COMPETENT PERSON EXCAVATION SAFETY CHECKLIST**

**H) 2 FOOT RULE**

- .. Spoils and all equipment are kept at least 2' from the excavation edge
- .. Steel toed safety shoes are worn by all crew members
- .. Hard hats are being worn by all (only exception is machine operator in cab)
- .. High visibility clothing is worn by all working in or near street
- .. Reflective traffic vests are being worn by flagger (always) and by all crew members when dark
- .. Eye/face protection equipment is worn by all using pipe saw and jackhammer
- .. Hearing protection used when exposed to high noise levels (ex: using pipe saw)

**I) MEANS OF EGRESS (LADDERS)**

- .. Ladders in use in excavations 4' or deeper and are secured from falling
- .. At least one ladder is provided for every 25' of lateral travel
- .. Ladders extend at least 3' from top edge of excavation

**J) MISCELLANEOUS**

- .. Employees are not permitted underneath suspended loads
- .. De-watering has been performed and majority of water removed
- .. No unusual smells or odors detected when digging (if detected, check atmosphere before entry)
- .. "After hour" protection (ex: barricades, fencing) is provided to prevent against someone falling into open hole

**K) CREW MEMBERS**

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**Water Present in Excavation Indicates Type C Soil: Sloping or Shoring is Required**



# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

The following glossary presents brief explanations of acronyms and common terms used by chemical manufacturers in their MSDS's.

**ACGIH** American Conference of Governmental Industrial Hygienists is an organization of professional personnel in governmental agencies of educational institutions engaged in occupational safety and health programs. ACGIH establishes recommended occupational exposure limits for chemical substances and physical agents. See TLV.

**Acid** Any chemical that undergoes dissociation in water with the formation of hydrogen ions. Acids have a sour taste and may cause severe skin burns. Acids turn litmus paper red and have pH values of 0-6.

**Acute Effect** Adverse effect on a human or animal that has severe symptoms developing rapidly and coming quickly to a crisis.

**Acute Toxicity** Acute effects resulting from a single dose of, or exposure to, a substance. Ordinarily used to denote effects in experimental animals.

**Adhesion** A union of two surfaces that are normally separate.

**Aerosol** A fine aerial suspension of particles sufficiently small in size to confer some degree of stability from sedimentation (e.g., smoke or fog).

**Air-Line Respirator** A respirator that is connected to a compressed breathable air source by a hose of small inside diameter. The air is delivered continuously or intermittently in a sufficient volume to meet the wearer's breathing requirements

**Air-Purifying Respirator** A respirator that uses chemicals to remove specific gases and vapors from the air or that uses a mechanical filter to remove particulate matter. An air-purifying respirator must only be used when there is sufficient oxygen to sustain life and the air contaminant level is below the concentration limits of the device.

**Alkali** Any chemical substance that forms soluble soaps with fatty acids. Alkalis are also referred to as bases. They may cause severe burns to the skin. Alkalis turn litmus paper blue and have pH values from 8 to 14.

**Allergic Reaction** An abnormal physiological response to chemical or physical stimuli.

**Amenorrhea** Absence of menstruation.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Anesthetic** A chemical that causes a total or partial loss of sensation. Overexposure to anesthetics can cause impaired judgment, dizziness, drowsiness, headache, unconsciousness, and even death. Examples include alcohol, paint remover, and degreasers.

**ANSI** American National Standards Institute is a privately funded, voluntary membership organization that identifies industrial and public needs for national consensus standards and coordinates development of such standards.

**Antidote** A remedy to relieve, prevent, or counteract the effects of a poison.

**API** American Petroleum Institute is an organization of the petroleum industry.

**Appearance** A description of a substance at normal room temperature and normal atmospheric conditions. Appearance includes the color, size, and consistency of a material.

**Aquatic Toxicity** The adverse effects to marine life that result from being exposed to a toxic substance.

**Article** Means a manufactured item: which is formed to a specific shape or design during manufacture which has end use function(s) dependent in whole or in part upon its shape or design during end use, and which does not release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use.

**Asphyxiant** A vapor or gas that can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce oxygen in the air (normally about 21 percent) to dangerous levels (18 percent or lower). Asphyxiation is one of the principal hazards of working in confined and enclosed spaces.

**ASTM** American Society for Testing and Materials is the world's largest source for voluntary consensus standards for materials, products, systems, and services. ASTM is a resource for sampling and testing methods, health and safety aspects of materials, safe performance guidelines, effects of physical and biological agents and chemicals.

**Asymptomatic** Showing no symptoms.

**Atm** Atmosphere, a unit of pressure equal to 760 mmHg (mercury) at sea level.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**Atmosphere-Supplying Respirator** A respirator that provides breathable air from a source independent of the surrounding atmosphere. There are two types: air-line and self-contained breathing apparatus.

**Auto-Ignition Temperature** The temperature to which a closed, or nearly closed container must be heated in order that the flammable liquid, when introduced into the container, will ignite spontaneously or burn.

**Base** A substance that (1) liberates hydroxide (OH) ions when dissolved in water, (2) receives hydrogen ions from a strong acid to form a weaker acid, and (3) neutralizes an acid. Bases react with acids to form salts and water. Bases have a pH greater than 7 and turn litmus paper blue. See Alkali.

**BCM** Blood-clotting mechanism effects.

**Benign** Not recurrent or not tending to progress. Not cancerous.

**Biodegradable** Capable of being broken down into innocuous products by the action of living things.

**Biopsy** Removal and examination of tissue from the living body.

**BLD** Blood effects.

**Boiling Points—BP** The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point usually expressed in degrees Fahrenheit at sea level pressure (760 mm/HG, or one atmosphere). For mixtures, the initial boiling point or the boiling range may be given.

**BOM or BuMines Bureau** of Mines, U.S. Department of Interior.

**Bonding** The interconnecting of two objects by means of a clamp and bare wire. Its purpose is to equalize the electrical potential between the objects to prevent a static discharge when transferring a flammable liquid from one container to another. The conductive path is provided by clamps that make contact with the charged object and a low resistance flexible cable which allows the charge to equalize. See Grounding.

**Bulk** Density Mass of powdered or granulated solid material per unit of volume.

**C** Centigrade, a unit of temperature.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Ceiling Limit (PEL or TLV)** The maximum allowable human exposure limit for an airborne substance which is not to be exceeded even momentarily. Also see PEL and TLV.

**CAA** Clean Air Act was enacted to regulate/reduce air pollution. CAA is administered by U.S. Environmental Protection Agency.

**Carcinogen** A substance or agent capable of causing or producing cancer in mammals, including humans. A chemical is considered to be a carcinogen if:

(a) It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; or

(b) It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or

(c) it is regulated by OSHA as a carcinogen.

**Carcinogenicity** The ability to produce cancer.

**Carcinoma** A malignant tumor. A form of cancer.

**CAS** Chemical Abstracts Service is an organization under the American Chemical Society. CAS abstracts and indexes chemical literature from all over the world in "Chemical Abstracts." CAS numbers are used to identify specific chemicals or mixtures.

**Caustic** See Alkali.

**Cc** Cubic centimeter is a volume measurement in the metric system that is equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters.

**Central Nervous System** the brain and spinal cord. These organs supervise and coordinate the activity of the entire nervous system. Sensory impulses are transmitted into the central nervous system, and motor impulses are transmitted out.

**CERCLA** Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The Act requires that the Coast Guard National Response Center be notified in the event of a hazardous substance release. The Act also provides for a fund (the Superfund) to be used for the cleanup of abandoned hazardous waste disposal sites.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**CFR** Code of Federal Regulations. A collection of the regulations that have been promulgated under United States Law.

**Chemical** An element (e.g., chlorine) or a compound (e.g., sodium bicarbonate) produced by chemical reaction.

**Chemical Cartridge Respirator** A respirator that uses various chemical substances to purify inhaled air of certain gases and vapors.

**Chemical Family** A group of single elements or compounds with a common general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are of the “Ketone” family.

**Chemical Name** The name given to a chemical in the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS). The scientific designation of a chemical or a name that will clearly identify the chemical for hazard evaluation purposes.

**Chemical Pneumonitis** Inflammation of the lungs caused by accumulation of fluids due to chemical irritation.

**CHEMTREC** Chemical Transportation Emergency Center is a national center established by the Chemical Manufacturers Association (CMA) to relay pertinent emergency information concerning specific chemicals on request from individuals. CHEMTREC has a 24-hour toll free telephone number (800-424-9300) to help respond to chemical transportation emergencies.

**Chronic Effect** An adverse effect on a human or animal body, with symptoms that develop slowly over a long period of time or that recur frequently. Also see Acute.

**Chronic Exposure** Long-term contact with a substance.

**Chronic Toxicity Adverse** (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.

**Clean Air Act** See CAA

**Clean Water Act** Federal law enacted to regulate/reduce water pollution. CWA is administered by EPA.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**CMA** Chemical Manufacturers Association. See CHEMTREC.

**CO** Carbon monoxide is a colorless, odorless, flammable, and very toxic gas produced by the incomplete combustion of carbon. It is also a byproduct of many chemical processes. A chemical asphyxiant; it reduces the blood's ability to carry oxygen. Hemoglobin absorbs CO two hundred times more readily than it does oxygen.

**CO<sub>2</sub>** Carbon dioxide is a heavy, colorless gas that is produced by the combustion and decomposition of organic substances and as a byproduct of many chemical processes. Carbon dioxide will not burn and is relatively nontoxic (although high concentrations, especially in confined spaces, can create hazardous oxygen-deficient environments).

**COC** Cleveland Open Cup is a flash point test method.

**Combustible** A term used by NFPA, DOT, and others to classify certain liquids that will burn, on the basis of flash points. Both NFPA and DOT generally define "combustible liquids" as having a flash point of 100oF (37.8oC) or higher, but below 200oF (93.3oC). Also see "flammable." Non-liquid substances such as wood and paper are classified as "ordinary combustibles" by NFPA.

**Combustible Liquid** Any liquid having a flash point at or above 100oF (37.8oC), but below 200oF (93.3oC), except any mixture having components with flash points of 200oF (93.3oC) or higher, the total volume of which makes up ninety-nine (99) percent or more of the total volume of the mixture.

**Common Name** Any means used to identify a chemical other than its chemical name (e.g., code name, code number, trade name, brand name, or generic name). See Generic.

### **Compressed Gas:**

(a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70oF (21.1oC); or

(b) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130oF (54.4oC) regardless of the pressure at 70oF (21.1oC); or

(c) A liquid having a vapor pressure exceeding 40 psi at 100oF (37.8oC) as determined by ASTM D-323-72

**Conc.** See Concentration.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Concentration** The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.

**Confined Space** Any area that has limited openings for entry and exit that would make escape difficult in an emergency, has a lack of ventilation, contains known and potential hazards, and is not intended nor designed for continuous human occupancy.

**Conjunctivitis** Inflammation of the conjunctiva, the delicate membrane that lines the eyelids and covers the eyeballs.

**Container** Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of MSDS or HCS, pipes, or piping systems are not considered to be containers.

**Corrosive** A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical reaction at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the DOT in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of 4 hours. This term shall not refer to action on inanimate surfaces.

**CPSC** Consumer Products Safety Commission has responsibility for regulating hazardous materials when they appear in consumer goods. For CPSC purposes, hazards are defined in the Hazardous Substances Act and the Poison Prevention Packaging Act of 1970.

**CWA** Clean Water Act was enacted to regulate/reduce water pollution. It is administered by EPA.

**Cyst** A sac containing liquid. Most cysts are harmless.

**Cytology** The scientific study of cells.

**Decomposition** Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into parts or elements or simpler compounds.

**Density** The mass (weight) per unit volume of a substance. For example, lead is much denser than aluminum.

**Depressant** A substance that reduces a bodily functional activity or an instinctive desire, such as appetite.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Dermal** Relating to the skin.

**Dermal Toxicity** Adverse effects resulting from skin exposure to a substance. Ordinarily used to denote effects in experimental animals.

**DHHS** U.S. Department of Health and Human Services (replaced U.S. Department of Health, Education, and Welfare). NIOSH and the Public Health Service (PHS) are part of DHHS.

**Dike** A barrier constructed to control or confine hazardous substances and prevent them from entering sewers, ditches, streams, or other flowing waters.

**Dilution Ventilation** Air flow designed to dilute contaminants to acceptable levels. Also see general ventilation or exhaust.

**DOL** U.S. Department of Labor. OSHA and MSHA are part of DOL.

**DOT** U.S. Department of Transportation regulates transportation of chemicals and other substances.

**Dry Chemical** A powdered fire-extinguishing agent usually composed of sodium bicarbonate, potassium bicarbonate, etc.

**Dysmenorrhea** Painful menstruation.

**Dyspnea** A sense of difficulty in breathing; shortness of breath.

**Ectopic pregnancy** The fertilized ovum becomes implanted outside the uterus.

**Edema** An abnormal accumulation of clear watery fluid in the tissues.

**Endocrine glands** Glands that regulate body activity by secreting hormones.

**Endometrium** The mucous membrane lining of the uterus.

**Environmental Toxicity** Information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.

**EPA** U.S. Environmental Protection Agency.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**Epidemiology** Science concerned with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation) which may provide information about the cause of the disease.

**Epithelium** The covering of internal and external surfaces of the body.

**Estrogen** Principal female sex hormone.

**Evaporation Rate** The rate at which a material will vaporize (evaporate) when compared to the know rate of vaporization of a standard material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The designated standard material is usually normal butyl acetate, with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:

- Fast evaporating if greater than 3.0
- Medium evaporating if 0.8-3.0
- Slow evaporating if less than 0.8

**Explosive** A chemical that causes a sudden almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

**Exposure or Exposed** State of being open and vulnerable to a hazardous chemical by inhalation, ingestion, skin contact, absorption, or any other course; including potential (accidental or possible) exposure.

**Extinguishing Media** The firefighting substance to be used to control a material in the event of a fire. It is usually identified by its generic name, such as fog, foam, water, etc.

**Eye Protection** Recommended safety glasses, chemical splash goggles, face shields, etc. to be utilized when handling a hazardous material.

**F** Fahrenheit is a scale for measuring temperature. On the Fahrenheit scale, water boils at 212oF and freezes at 32oF.

**f/cc** Fibers per cubic centimeter of air.

**FDA** U.S. Food and Drug Administration.

**Fetal** Pertaining to the fetus.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**Fetus** The developing young in the uterus from the seventh week of gestation until birth.

**Fibrosis** An abnormal thickening of fibrous connective tissue, usually in the lungs.

**FIFRA** Federal Insecticide, Fungicide, and Rodenticide Act requires that certain useful poisons, such as chemical pesticides, sold to the public contain labels that carry health hazard warnings to protect users. It is administered by the EPA.

**First Aid** Emergency measures to be taken when a person is suffering from overexposure to a hazardous material, before regular medical help can be obtained.

**Flammable** A chemical that includes one of the following categories:

(a) “Aerosol, flammable.” An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flash back (a flame extending back to the valve) at any degree of opening;

(b) “Gas, flammable.” (1) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less; or (2) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit;

(c) “Liquid, flammable.” Any liquid having a flashpoint below 100oF (37.8oC) except any mixture having components with flashpoints of 100oF (37.8oC) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(d) “Solid, flammable.” A solid, other than a blasting agent or explosive as defined in CFR 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A solid is a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one tenth of an inch per second along its major axis.

**Flashback** Occurs when flame from a torch burns back into the tip, the torch, or the hose. It is often accompanied by a hissing or squealing sound with a smoky or sharp-pointed flame.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Flashpoint** The minimum temperature at which a liquid gives off vapor in sufficient concentration to ignite when tested by one of the following methods: Tagliabue Closed Tester (ASTN D56-79), Pensky- Martens Closed Tester (ASTM D93-79), or Setaflash Closed Tester (ASTM D3278-78).

**Formula** The scientific expression of the chemical composition of a material (e.g., water is expressed as H<sub>2</sub>O).

**Fume** A solid condensation particle of extremely small diameter, commonly generated from molten metal as metal fume.

**G** Gram is a metric unit of weight. One ounce U.S. (avoirdupois) is about 28.4 grams.

**General Exhaust** A system for exhausting air containing contaminants from a general work area. Also see Local Exhaust.

**Generic Name** A designation or identification used to identify a chemical by other than its chemical name (e.g., code name, code number, trade name, and brand name).

**Genetic** Pertaining to or carried by genes. Hereditary.

**Gestation** The development of the fetus in the uterus from conception to birth; pregnancy.

**g /kg** Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to denote grams of a substance dosed per kilogram of animal body weight. Also see “kg” (kilogram).

**Grounding** The procedure used to carry an electrical charge to ground through a conductive path. A typical ground may be connected directly to a conductive water pipe or to a grounding bus and ground rod. See Bonding.

**Gynecology** The study of the reproductive organs in women.

**Hand Protection** Specific types of gloves or other hand protection required to prevent harmful exposure to hazardous materials.

**Hazardous Chemical** Any chemical whose presence or use is a physical hazard or a health hazard.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Hazardous Warning** Words, pictures, symbols, or combination thereof presented on a label or other appropriate form to inform of the presence of various materials.

**HCS** Hazard Communication Standard is an OSHA regulation issued under 29 CFR Part 1910.1200.

**Health Hazard** A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed associates. The term “health hazard” includes chemicals that are carcinogens, toxic, or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes

**Hemoglobin** An iron-containing conjugated protein or respiratory pigment occurring in the red blood cells of vertebrates.

**Hematoma** A blood clot under the surface of the skin.

**Hematuria** the presence of blood in the urine.

**Hepatotoxin** A substance that causes injury to the liver.

**Highly toxic** A chemical in any of the following categories:

(a) A chemical with a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical with a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.

(c) A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 to 300 grams each.

**Hormones** Act as chemical messengers to body organs.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**IARC** International Agency for Research on Cancer.

**Ignitable** Capable of being set afire.

**Impervious** A material that does not allow another substance to pass through or penetrate it.

**Incompatible** Materials that could cause dangerous reactions by direct contact with one another.

**Ingestion** Taking in by the mouth.

**Inhale** See inhalation.

**Inhalation** Breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

**Inhibitor** A chemical added to another substance to prevent unwanted chemical change.

**Insol** See insoluble.

**Insoluble** Incapable of being dissolved in a liquid.

**Intrauterine** Within the uterus.

**Irritant** A chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for 4 hours exposure or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

**Irritating** As defined by DOT, a property of a liquid or solid substance which, upon contact with fire or when exposed to air, gives off dangerous or intensely irritating fumes (not including poisonous materials). See Poison, Class A and Poison, Class B.

**kg** Kilogram is a metric unit of weight, about 2.2 U.S. pounds. Also see “g/kg,” “g,” and “mg.”

**L** Liter is a metric unit of capacity. A U.S. quart is about 9/10 of a liter.

**Lacrimation** Secretion and discharge of tears.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**Label** Notice attached to a container, bearing information concerning its contents.

**Lactation** The secretion of milk by the breasts.

**LC** Lethal concentration is the concentration of a substance being tested that will kill.

**LCL** Lethal concentration, low, lowest concentration of a gas or vapor capable of killing a specified species over a period of time.

**LC50** The concentration of a material in air that will kill 50 percent of a group of test animals with a single exposure (usually 1 to 4 hours). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms of material per liter of air (g/l) or milligrams of material per cubic meter of air (mg/m<sup>3</sup>) for dusts and mists, as well as for gases and vapors.

**LD** Lethal dose is the quantity of a substance being tested that will kill.

**LDL** Lethal dose, low, lowest administered dose of a material capable of killing a specified test species.

**LD50** A single dose of a material expected to kill 50 percent of a group of test animals. The LD50 dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin.

**LEL, or LFL** Lower explosive limit, or lower flammable limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. Also see "UEL".

**Lesion** Any damage to a tissue.

**Lfm** Linear feet per minute, a unit of air velocity.

**Local Exhaust** A system for capturing and exhausting contaminants from the air at the point where the contaminants are produced (welding, grinding, sanding, or other processes or operations). Also see General Exhaust.

**M** Meter is a unit of length in the metric system. One meter is about 39 inches.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**m<sup>3</sup>** Cubic meter is a metric measure of volume, approximately 35.3 cubic feet or 1.3 cubic yards.

**Malaise** A feeling of general discomfort, distress, or uneasiness, an out-of-sorts feeling.

**Malignant** Tending to become progressively worse and to result in death.

**Mammary** Pertaining to the breast.

**Mechanical Exhaust** A powered device, such as a motor-driven fan or air stream venturi tube, for exhausting contaminants from a workplace, vessel, or enclosure.

**Mechanical Filter Respirator** A respirator used to protect against airborne particulate matter like dusts, mists, metal fume, and smoke. Mechanical filter respirators do not provide protection against gases, vapors, or oxygen-deficient atmospheres.

**Melting Point** The temperature at which a solid substance changes to a liquid state.

**Menorrhagia** Excessive menstruation.

**Menstruation** Periodic discharge of blood from the vagina of a non-pregnant uterus.

**Metabolism** Physical and chemical processes taking place among the ions, atoms, and molecules of the body.

**Metastasis** The transfer of disease from one organ or part to another not directly connected with it.

**Meter** A unit of length; equivalent to 39.37 inches.

**mg** Milligram is a metric unit of weight that is one thousandth of a gram.

**mg/kg** Milligrams of substance per kilogram of body weight is an expression of toxicological dose.

**mg/m<sup>3</sup>** Milligrams per cubic meter is a unit for expressing concentrations of dusts, gases, or mists in air.

**Micron** (Micrometer) A unit of length equal to one-millionth of a meter; approximately 0.000039 of an inch.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Mist** Suspended liquid droplets generated by condensation from the gaseous to the liquid state, or by breaking up a liquid into a dispersed state, such as splashing, foaming or atomizing. Mist is formed when a finely divided liquid is suspended in air.

**Mixture** Any combination of two or more chemicals if the combination is not, in whole or part, the result of a chemical reaction.

**Mld** Mild

**ml** Milliliter is a metric unit of capacity, equal in volume to 1 cubic centimeter (cc), or approximately one-sixteenth of a cubic inch. One-thousandth of a liter.

**mmHg** Millimeters (mm) of mercury (Hg) is a unit of measurement for low pressures or partial vacuums.

**Molecular Weight:** Weight (mass) of a molecule based on the sum of the atomic weights of the atoms that make up the molecule.

**mppcf** Million particles per cubic foot is a unit for expressing concentration of particles of a substance suspended in air. Exposure limits for mineral dusts (silica, graphite, Portland cement, nuisance dusts, and others) , formerly expressed as mppcf are now more commonly expressed in mg/m<sup>3</sup>.

**MSDS** Material Safety Data Sheet.

**MSHA** Mine Safety and Health Administration, U.S. Department of Labor.

**Mutagen** A substance or agent capable of altering the genetic material in a living cell.

**MW** See molecular weight.

**N<sub>2</sub>** Nitrogen is a colorless, odorless, and tasteless gas that will not burn and will not support combustion. The earth's atmosphere (air) is about 78 percent nitrogen. At higher concentrations, nitrogen can displace oxygen and become a lethal asphyxiant. See Asphyxiant.

**Narcosis** A state of stupor, unconsciousness, or arrested activity produced by the influence of narcotics or other chemicals.

**Nausea** Tendency to vomit, feeling of sickness at the stomach.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**NCI** National Cancer Institute is that part of the National Institutes of Health that studies cancer causes and prevention as well as diagnosis, treatment, and rehabilitation of cancer patients.

**NFPA** National Fire Protection Association is an international membership organization which promotes/improves fire protection and prevention and establishes safeguards against loss of life, and property by fire.

**Neo** See neoplasia.

**Neonatal** The first 4 weeks after birth.

**Neoplasia** A condition characterized by the presence of new growths (tumors).

**Nephrotoxin** A substance that causes injury to the kidneys.

**Neurotoxin** A material that affects the nerve cells and may produce emotional or behavioral abnormalities.

**Neutralize** To eliminate potential hazards by inactivating strong acids, caustics, and oxidizers. For example, acids can be neutralized by adding an appropriate amount of caustic substance to the spill.

**ng** nanogram, one-billionth of a gram.

**NIOSH** National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services (DHHS), among other activities, tests and certifies respiratory protective devices and air sampling detector tubes, recommends occupational exposure limits for various substances, and assists OSHA and MSHA in occupational safety and health investigations and research.

**Nonflammable** Not easily ignited, or if ignited, not burning rapidly.

**Non-Sparking Tools** Tools made from beryllium-copper or aluminum-bronze greatly reducing the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.

**NO<sub>x</sub>** Oxides of nitrogen which are undesirable air pollutants. NO emissions are regulated by EPA under the Clean Air Act.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

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**Neoplasia** A condition characterized by the presence of new growths (tumors).

**Nephrotoxin** A substance that causes injury to the kidneys.

**Oral Toxicity** Adverse effects resulting from taking a substance into the body by mouth. Ordinarily used to denote effects in experimental animals.

**Organic Peroxide** An organic compound that contains the bivalent –O-O structure and may be considered a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

**Organogenesis** The formation of organs during development.

**OSHA** Occupational Safety and Health Administration, U.S. Department of Labor.

**Ovary** The female sex gland in which ova are formed.

**Overexposure** Exposure to a hazardous material beyond the allowable limits.

**Oxidation** In a literal sense, oxidation is a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent. See Oxidizing Agent.

**Oxidizing Agent** A chemical or substance that brings about an oxidation reaction. The agent may (1) provide the oxygen to the substance being oxidized (in which case the agent has to be oxygen or contain oxygen), or (2) it may receive electrons being transferred from the substance undergoing oxidation (chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen).

**Pathologic** Pertaining to or caused by disease.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Pathology** Scientific study of alterations produced by disease.

**PEL** Permissible Exposure Limit is an occupational exposure limit established by OSHA's regulated authority. It may be a time-weighted average (TWA) limit or a maximum concentration exposure limit.

**Percent Volatile** Percent volatile by volume is the percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70oF (unless some other temperature is specified).

Example: butane, gasoline, and paint thinner are 100 percent volatile; each will evaporate completely.

**pH** The symbol relating the hydrogen ion (H<sup>+</sup>) concentration to that of a given standard solution. A pH of 7 is neutral. Numbers increasing from 7 to 14 indicate greater alkalinity. Numbers decreasing from 7 to 0 indicate greater acidity.

**Physical Hazard** Means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

**Placenta** A structure that grows on the wall of the uterus during pregnancy, through which the fetus is nourished.

**PMCC** Pensky-Martens Closed Cup. See Flashpoint.

**Pneumoconiosis** A condition of the lung in which there is permanent deposition of particulate matter and the tissue reaction to its presence. It may range from relatively harmless forms of iron oxide deposition to destructive forms of silicosis.

**Poison, Class A** A DOT term for extremely dangerous poisons-poisonous gases or liquids that, in very small amounts, either as gas or as vapor of the liquid, mixed with air, are dangerous to life. Examples: phosgene, cyanogen, hydrocyanic acid, nitrogen peroxide.

**Poison, Class B** A DOT term for liquid, solid, paste, or semisolid substances-other than Class A poisons or irritating materials-that are known (or presumed on the basis of animal tests) to be so toxic to humans that they are a hazard to health during transportation.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Polymerization** A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy. If such could occur with a given material, the MSDS usually will list the conditions that could start the reaction.

**ppb** Parts per billion is the concentration of a gas or vapor in air- parts (by volume) of the gas or vapor in a billion parts of air. Usually used to express extremely low concentrations of unusually toxic gases or vapors; also the concentration of a particular substance in a liquid or solid.

**ppm** Parts per million is the concentration of a gas or vapor in air- parts (by volume) of the gas or vapor in a million parts of air; also the concentration of a particulate in a liquid or solid.

**Prenatal** Preceding birth.

**psi** Pounds per square inch (for MSDS purposes) is the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psi (pounds per square inch gauge) or psia (pounds per square inch absolute; that is gauge pressure plus sea level atmospheric pressure, or psi plus approximately 14.7 pounds per square inch). Also see mmHg.

**Pul** See pulmonary.

**Pulmonary** Relating to, or associated with, the lungs.

**Pulmonary Edema** Fluid in the lungs.

**Pyrophoric** A chemical that will ignite spontaneously in air at a temperature of 130°F (54.4°C) or below.

**Reaction** A chemical transformation or change. The interaction of two or more substances to form new substances.

**Reactive** See Unstable.

**Reactivity** Chemical reaction with the release of energy. Undesirable effects- such as pressure buildup, temperature increase, formation of noxious, toxic or corrosive byproducts- may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or storage.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Reducing agent** In a reduction reaction (which always occurs simultaneously with an oxidation reaction) the reducing agent is the chemical or substance which (1) combines with oxygen or (2) loses electrons to the reaction. See Oxidation.

**REL** The NIOSH REL (Recommended Exposure Limit) is the highest allowable airborne concentration which is not expected to injure the workers. It may be expressed as a ceiling limit or as a time-weighted average (TWA).

**Reproductive Toxin** Substances that affect either male or female reproductive systems and may impair the ability to have children.

**Respiratory Protection** Devices that will protect the wearer's respiratory system from overexposure by inhalation to airborne contaminants. Respiratory protection is used when a worker must work in an area where he/she might be exposed to concentration in excess of the allowable exposure limit.

**Respiratory System** The breathing system that includes the lungs and the air passages (trachea or "windpipe," larynx, mouth, and nose) to the air outside the body, plus the associated nervous and circulatory supply.

**Routes of Entry** The means by which material may gain access to the body, for example, inhalation, ingestion, and skin contact.

**RCRA** Resource Conservation and Recovery Act is environmental legislation aimed at controlling the generation, treating, storage, transportation and disposal of hazardous wastes. It is administered by EPA.

**Sarcoma** A tumor that is often malignant.

**Self-Contained Breathing Apparatus** A respiratory protection device that consists of a supply or a means of breathable air, oxygen, or oxygen-generating material carried by the wearer. Sensitizer A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

**SETA** Setaflash Closed Tester. See Flashpoint.

**Silicosis** A disease of the lungs (fibrosis) caused by the inhalation of silica dust.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Skn** Skin

**“Skin”** A notation (sometimes used with PEL or TLV exposure data) that indicates that the stated substance may be absorbed by the skin, mucous membranes, and eyes- either airborne or by direct contact- and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TLV for that substance.

**Skin Absorption** Ability of some hazardous chemicals to pass directly through the skin and enter the bloodstream.

**Skin Sensitizer** See Sensitizer.

**Skin Toxicity** See Dermal Toxicity.

**Solubility in Water** A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and re-extinguishing agents and methods for a material.

**Solvent** A substance, usually a liquid, in which other substances are dissolved. The most common solvent is water.

**Sox** Oxides of sulfur.

**Species** On the MSDS's, species refers to the test animals- usually rats, mice, or rabbits- used to obtain toxicity test data reported.

**Specific Chemical identity** The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any precise chemical designation of a substance.

**Specific Gravity** The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float in (or on) water. Insoluble materials with specific gravity greater than 1.0 will sink in water. Most (but not all) flammable liquids have specific gravity less than 1.0 and, if not soluble, will float on water- an important consideration for fire suppression.

**Spill or Leak Procedures** The methods, equipment, and precautions that should be used to control or clean up a leak or spill.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**Splash-Proof Goggles** Eye protection made of a non-corrosive material that fits snugly against the face, and has indirect ventilation ports.

**Spontaneously Combustible** A material that ignites as a result of retained heat from processing, or that will oxidize to generate heat and ignite, or that absorbs moisture to generate heat and ignite.

**Squamous** Scaly or plate-like.

**Stability** The ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions that may cause instability (dangerous change) are stated; for example, temperatures above 150oF.; shock from dropping.

**STEL** Short-Term Exposure Limit (ACGIH terminology). See TLV.

**Stenosis** Narrowing of a body passage or opening.

**Steroid** A complex molecule among which are the male and female sex hormones.

**Subcutaneous** Beneath the layers of the skin.

**Supplied-Air Respirators** Airline respirators or self-contained breathing apparatus.

**Sys** System or systemic

**Systemic Poison** A poison that spreads throughout the body, affecting all body systems and organs. Its adverse effect is not localized in one spot or area.

**Systemic Toxicity** Adverse effects caused by a substance that affects the body in a general rather than local manner.

**Target Organ Toxin** A toxic substance that attacks a specific organ of the body. For example, overexposure to carbon tetrachloride can cause liver damage.

**TCC** Tag (Tagliabue) Closed Cup. See Flashpoint

**TCL** Toxic concentration low, the lowest concentration of a gas or vapor capable of producing a defined toxic effect in a specified test species over a specified period of time.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**TDL** Toxic dose low, the lowest administered dose of a material capable of producing a defined toxic effect in a specified test species.

**Temp** Temperature.

**Ter** See Teratogen.

**Teratogen** A substance or agent, exposure to which by a pregnant female can result in malformations in the fetus.

**Tfx** Toxic effect(s).

**TLV** Threshold Limit Value is a term used by the ACGIH to express the airborne concentration of material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLVs in three ways:

**TLV-TWA:** The allowable Time-Weighted Average concentration for a normal 8-hour workday or 80-hour workweek.

**TLV-STEL:** The Short-Term Exposure Limit, or maximum concentration for a continuous 15- minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLVTWA is not exceeded).

**TLV-C:** The ceiling exposure limit- the concentration that should not be exceeded even instantaneously.

**TOC** Tag Open Cup. See Flashpoint.

**Torr** A unit of pressure, equal to 1/760 atmosphere.



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **GLOSSARY OF TERMS**

**Toxic** A chemical falling within any of the following categories:

(a) A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour to albino rats weighing between 200 and 300 grams each.

**Toxic Substance** Any substance that can cause acute or chronic injury to the human body, or which is suspected of being able to cause diseases or injury under some conditions.

**Toxicity** The sum of adverse effects resulting from exposure to a material, generally, by the mouth, skin, or respiratory tract.

**Trade Name** The trademark name or commercial trade name for a material or product.

**Transplacental** An agent that causes physical defects in the developing embryo.

**TSCA** Toxic Substances Control Act (Federal Environmental Legislation administered by EPA) regulates the manufacture, handling, and use of materials classified as “toxic substances.”

**TWA** Time-Weighted Average exposure in the airborne concentration of a material to which a person is exposed, averaged over the total exposure time- generally the total workday (8 to 12 hours). Also see TLV.

# HEALTH & SAFETY PROCEDURES MANUAL

## GLOSSARY OF TERMS

**UEL, or UFL** Upper explosive limit or upper flammable limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too “rich” to burn. Also see LEL.

**ug** Microgram, one-millionth of a gram.

**Unstable** Tending toward decomposition or other unwanted chemical change during normal handling or storage.

**Unstable Reactive** A chemical that, in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shocks, pressure, or temperature.

**USDA** U.S. Department of Agriculture.

**Vapor** The gaseous form of a solid or liquid substance as it evaporates.

**Vapor Density** The weight of a vapor or gas compared to the weight of an equal volume of air is an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0. Materials heavier than air (example, chlorine) have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate (unless confined). Heavier vapors and gases are likely to concentrate in low places- along or under floors, in sumps, sewers, and manholes, in trenches and ditches- where they may create fire or health hazards.

**Vapor Pressure** The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100oF, and the vapor pressure is expressed as pounds per square inch (psi or psia), but vapor pressures reported on MSDS’s are in millimeters of mercury (mmHg) at 68oF, unless stated otherwise. Three facts are important to remember:

- (1) Vapor pressure of a substance at 100oF will always be higher than the vapor pressure of the substance at 68oF.
- (2) Vapor pressures reported on MSDS’s in mmHg are usually very low pressures; 760 mmHg is equivalent to 14.7 pounds per square inch.
- (3) The lower the boiling point of a substance, the higher its vapor pressure.

# HEALTH & SAFETY PROCEDURES MANUAL

## **GLOSSARY OF TERMS**

**Ventilation** See General Exhaust, Local Exhaust, and Mechanical Exhaust

**Vermiculite** An expanded mica (hydrated magnesium-aluminum-iron silicate) used as an absorbent for spill control and cleanup.

**Viscosity** The tendency of a fluid to resist internal flow without regard to its density.

**Volatility** A measure of how quickly a substance forms a vapor at ordinary temperatures.

**Water Disposal Methods** Proper disposal methods for contaminated material, recovered liquids or solids, and their containers.

**Water Reactive** A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

**Work Area** A room or defined space in a workplace where hazardous chemicals are produced or used, and where associates are present.

**Workplace** An establishment at one geographical location containing one or more work areas.

**Zinc Fume Fever** A condition brought on by inhalation of zinc oxide fume characterized by flu like symptoms with a metallic taste in the mouth, coughing, weakness, fatigue, muscular pain, and nausea, followed by fever and chills. The onset of symptoms occurs four to twelve hours after exposure.

**HEALTH & SAFETY PROCEDURES MANUAL**  
**HEPATITIS B VACCINE AFFIDAVIT**

**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 the Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.**

**Printed Name:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Witness:** \_\_\_\_\_

**Date:** \_\_\_\_\_

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HOT WORK PERMIT**

### **INSTRUCTIONS**

A Hot Work Permit must be completed for all operations performed within a confined space that require workers to weld, cut, or use other open-flame or spark producing devices in a confined space. 1) Complete permit and eliminate all hazardous conditions before entry begins. 2) The Hot Work Permit must be signed by the person authorizing entry. 3) Attach signed permit to the Confined Space Permit and post both permits at entrance to confined space. 4) Forward cancelled permit to the Loss Control Department for review. 5) Note: Do not cut, weld, or use other open-flame or spark producing devices or equipment until the proper precautions have been taken.

### **GENERAL INFORMATION**

Job Site: (District, location and description)

---

Permit Begins: Date \_\_\_\_\_ Time \_\_\_\_\_ AM/PM Permit Expires:

Date \_\_\_\_\_ Time \_\_\_\_\_ AM/PM

Location & Description of Confined Space

---

---

**Purpose of Entry:**

---

---

**Type of Hot Work**

Cut:

Weld:

Grind:



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **HOT WORK PERMIT**

Is welding machine and other equipment safely located, grounded, and spark controlled?  
YES NO

**TRAINING:** (Please Circle YES or NO)

Have all workers been trained to work safely? YES NO

Have all workers completed a pre-entry briefing? YES NO

Have all workers been trained in emergency procedures? YES NO

Have all workers been trained to use a fire extinguisher? YES NO

Have all workers been instructed **NOT** to bring gas cylinders into the confined space?  
YES NO

Have all workers been instructed to remove welding hoses and leads from the confined space when not in use? YES NO

**FIRE WATCH:** (Please Print Name)

Name: \_\_\_\_\_

**PERSON (S) PERFORMING HOT WORK:** (Please Print Name(s))

- 1)
- 2)
- 3)

**HEALTH & SAFETY PROCEDURES MANUAL**  
**HOT WORK PERMIT**

**SIGNATURE OF PERSON AUTHORIZING ENTRY**

Signature \_\_\_\_\_

Date \_\_\_\_\_

Time AM/PM \_\_\_\_\_

**CANCELLATION OF PERMIT**

Date cancelled \_\_\_\_\_

Time cancelled \_\_\_\_\_

Cancelled by: Signature \_\_\_\_\_



**HEALTH & SAFETY PROCEDURES MANUAL**  
**JOB SAFETY ANALYSIS**

COMPANY/ORGANIZATION	TITLE OF PERSON WHO DOES JOB	SUPERVISOR:	ANALYSIS BY:
	PLANT/LOCATION	DEPARTMENT	REVIEWED BY:
REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:			APPROVED BY:
SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE	

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **MANAGEMENT OF CHANGE CHECKLIST**

### **1. PROPOSED CHANGE**

- a. Facility: \_\_\_\_\_
- b. Proposed Change: \_\_\_\_\_
- c. Proposed Date of Change: \_\_\_\_\_
- d. Permanent Change:           .. Yes .           . No
- e. If Temporary, From: \_\_\_\_\_ To: \_\_\_\_\_

### **2. TECHNICAL BASIS FOR PROPOSED CHANGE**

- a. What is the need for making the change to the system?

---

---

- b. Who will design the change? \_\_\_\_\_

- c. Reference the applicable standard (Chlorine Institute, AWWA, ANSI, OSHA):

---

---

### **3. IMPACT OF CHANGE ON HEALTH & SAFETY OF EMPLOYEES**

- a. Is this change being made to improve health & safety or operational consideration?  
.. Yes                   .. No

- b. If the change is for health & safety, detail how it will improve health & safety considerations:

---

---

- c. If the changes being made are for operational considerations, detail and effect on health & safety:





# HEALTH & SAFETY PROCEDURES MANUAL

## Contents of a OSHA 300 Log

### OSHA

### Forms for Recording

### Work-Related Injuries and Illnesses

If you need help deciding whether a case is recordable, or if you have questions about the information in this package, feel free to contact us. We'll gladly answer any questions you have.

If You Need Help...

Visit us online at [www.osha.gov](http://www.osha.gov) Call your OSHA Regional office and ask for the recordkeeping coordinator or Call your State Plan office Federal Jurisdiction State Plan States

Region 1 - 617 / 565-9860 Connecticut; Massachusetts; Maine; New Hampshire; Rhode Island

Region 2 - 212 / 337-2378 New York; New Jersey

Region 3 - 215 / 861-4900 DC; Delaware; Pennsylvania; West Virginia

Region 4 - 404 / 562-2300 Alabama; Florida; Georgia; Mississippi

Region 5 - 312 / 353-2220 Illinois; Ohio; Wisconsin

Region 6 - 214 / 767-4731 Arkansas; Louisiana; Oklahoma; Texas

Region 7 - 816 / 426-5861 Kansas; Missouri; Nebraska

Region 8 - 303 / 844-1600 Colorado; Montana; North Dakota; South Dakota

Region 9 - 415 / 975-4310

Region 10 - 206 / 553-5930 Idaho

Alaska - 907 / 269-4957      Arizona - 602 / 542-5795      California - 415 / 703-5100  
Connecticut - 860 / 566-4380      Hawaii - 808 / 586-9100      Indiana - 317 / 232-2688  
Iowa - 515 / 281-3661      Kentucky - 502 / 564-3070      Maryland - 410 / 767-2371  
Michigan - 517 / 322-1848      Minnesota - 651 / 284-5050      Nevada - 702 / 486-9020  
New Jersey - 609 / 984-1389      New Mexico - 505 / 827-4230      New York - 518 / 457-2574  
North Carolina - 919 / 807-2875      Oregon - 503 / 378-3272      Puerto Rico - 787 / 754-2172  
South Carolina - 803 / 734-9669      Tennessee - 615 / 741-2793      Utah - 801 / 530-6901  
Vermont - 802 / 828-2765      Virginia - 804 / 786-6613      Virgin Islands - 340 / 772-1315  
Washington - 360 / 902-5554      Wyoming - 307 / 777-7786

**HEALTH & SAFETY PROCEDURES MANUAL**  
**POST EXPOSURE CHECKLIST**

Name of exposed individual

---

Social Security Number

---

Has a worker's compensation reporting form been completed?    .. Yes            .. No

Briefly describe the routes of exposure:

---

---

Describe the circumstances that caused the exposure:

---

---

Source individual:

---

(If unknown, please state individual is unknown)

If source individual is known, obtain written permission to perform a blood test.

.. Request healthcare professionals provide written evaluation of blood test.

.. Provide the healthcare professional's test results to exposed employee.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **POST EXPOSURE CHECKLIST**

.. Document that the above report has been reviewed with the exposed employee.  
**PERSONAL PROTECTIVE EQUIPMENT (PPE) FORM**

Completed by: (Signature)

---

Dated:

---

Job Title evaluated:

---

<b>JOB TASK</b>	<b>HAZARDS</b>	<b>REQUIRED PPE</b>

# HEALTH & SAFETY PROCEDURES MANUAL

## PRE-STARTUP SAFETY REVIEW

Instructions: Global Water Resources must perform a pre-startup safety review for new facilities or modified facilities when the modification is significant enough to require a change in the process safety information. Before introducing a chemical process, the information below must be confirmed. After initialing the checklist, authorized personnel shall sign where designated once the entire checklist has been completed.

Identification of new facility or modification:

\_\_\_\_\_

### Pre-Startup Safety Review Checklist

Verify the following:		Yes	No	Initials	Date
1.	Is this a new facility?				
2.	If yes, has a PHA been performed and implemented?				
3.	Is this a modified facility?				
4.	If yes, has management of change been followed?				
5.	Has training been completed?				
6.	Is construction in accordance with design specifications?				
7.	Has the system been pressure-e or vacuum-tested?				
8.	Are revised safety procedures in place?				
9.	Are revised operating procedures in place?				
10.	Are revised maintenance procedures in place?				
11.	Are emergency procedures in place?				
12.	Is a contingency plan in place in case of a failure upon startup?				

Authorization:

Manager/Superintendent \_\_\_\_\_ Date \_\_\_\_\_

(Title) \_\_\_\_\_ Date \_\_\_\_\_



# **HEALTH & SAFETY PROCEDURES MANUAL** **PROCEDURE DEVELOPMENT GUIDELINES**

## **INTRODUCTION**

1. In accordance with OSHA Regulation 1910.147, documented procedures shall be developed and utilized for the control of potentially hazardous energy when employees are engaged in the repair or maintenance of machinery or equipment.
2. The procedure shall clearly and specifically outline the:
  - a. Scope
  - b. Purpose
  - c. Authorization
  - d. Rules and techniques to be utilized for the control of hazardous energy.
  - e. Means to enforce compliance, including, but not limited to, the following:
    - (1) A specific statement of the intended use of the procedure
    - (2) Specific procedural steps for shutting down, isolating, blocking, and securing machines and equipment to control hazardous energy.
    - (3) Specific procedural steps for the placement, removal, and transfer of lockout or tag-out devices and the responsibility for them.
    - (4) Specific requirements for testing a machine or piece of equipment to determine and verify the effectiveness of lockout devices, tag-out devices, and other control measures.
3. The following worksheets can be utilized to develop a lockout/tag-out procedure. Fill in the blanks or annotate not applicable (N/A) as appropriate. Return the form to the Loss Control Department upon completion.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PROCEDURE DEVELOPMENT GUIDELINES**

### **PROCEDURE DEVELOPMENT WORKSHEET**

#### **LOCKOUT PROCEDURE**

Lockout procedure for: \_\_\_\_\_  
(Identify equipment, machinery, or process)

#### **PURPOSE:**

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done. It shall be used to ensure that the machine, equipment, or process is stopped, isolated from all potentially hazardous energy, and locked out before employees perform any servicing or maintenance where the unexpected energization, start-up, or release of stored energy could cause injury.

#### **COMPLIANCE:**

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees upon observing a machine, piece of equipment, or process, which is locked-out, for the purpose of performing servicing or maintenance, shall not attempt to start, energize, or use that machine, piece of equipment, or process. Failure to comply with this procedure could result in disciplinary actions.

#### **SEQUENCE OF LOCKOUT PROCEDURE:**

##### **1. Notification of Employees:**

*Notify the following affected employees that the machine, equipment, or process must be shut down and locked out to perform servicing or maintenance:*

---

(List the job title(s) of affected employees and method of notification)

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **PROCEDURE DEVELOPMENT GUIDELINES**

### **2. Preparation for shutdown:**

Before an authorized employee or affected employee turns off a machine, piece of equipment or a process, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method to control the energy.

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**(List the types, magnitudes, and hazards of the energy and methods to control)**

**Examples:**

**Electrical, 660 volts, shock hazard, lockout circuit breaker**

**Chlorine gas, high pressure, respiratory hazard, valve lockout and line bleed**

### **3. Shutdown:**

The machine, equipment, or process shall be shut down as follows:

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**( List shutdown procedures, i.e. Depress stop button, close valve, etc. and include location of the operating controls)**

### **4. Isolate energy controls:**

Deactivate the energy isolating devices so that the machine, equipment or process is isolated from all energy sources.

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**(List types and locations of energy isolating devices)**

# **HEALTH & SAFETY PROCEDURES MANUAL** **PROCEDURE DEVELOPMENT GUIDELINES**

## **5. Apply lockout/Tag-out Devices:**

Lockout the energy isolating devices as follows:

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**(Describe the type of lockout device needed for each energy isolating control)**

## **6. Stored Energy:**

Following the application of the lockout/tag-out devices, all potentially stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic, air, gas, or water pressure systems, etc.), must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

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**(Describe method to dissipate, restrain, or otherwise relieve any potential stored or residual energy)**

## **7. Verification of isolation:**

Prior to beginning repair or maintenance, employees must verify the isolation and de-energization of the machine, equipment or process has been accomplished.

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**(Describe method of verifying isolation, usually the method is attempting normal startup procedures)**

Upon completion of this form, forward to Loss Control Department

**HEALTH & SAFETY PROCEDURES MANUAL**  
**WORK EXPERIENCE QUESTIONNAIRE FOLLOW-UP**  
**INVESTIGATION**

**I. GENERAL**

CONTRACTOR: \_\_\_\_\_

DATE OF WORK EXPERIENCE QUESTIONNAIRE: \_\_\_\_\_  
(Attach copy of completed questionnaire)

PROJECT INFORMATION (if applicable): \_\_\_\_\_  
(Water Company, project name, estimated cost, etc.)

**II. TELEPHONE INTERVIEW RESULTS**

Attach copies of completed telephone interview questionnaires.

**III. RECOMMENDATION**

\_\_\_\_\_  
\_\_\_\_\_

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

Approved: \_\_\_\_\_

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

To \_\_\_\_\_ (district/operation) employees required to wear a respirator:

Can you read (Please circle one.) Yes No

\_\_\_\_\_ (district/operation) will allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, \_\_\_\_\_ (district/operation) will not look at or review your answers, and will tell you how to deliver or send this questionnaire to the \_\_\_\_\_ (district/operation) designated health care facility, who will review it.

**Part A. Section 1. (Mandatory)**

The following information must be provided by every employee who has been selected to use any type of respirator. (Please print).

1. Today's date: \_\_\_\_\_
2. Your name: \_\_\_\_\_
3. Your age (to the nearest year): \_\_\_\_\_
4. Sex (please circle one): Male Female
5. Your height: \_\_\_\_\_ ft. \_\_\_\_\_ in.
6. Your weight: \_\_\_\_\_ lbs.
7. Your job title: \_\_\_\_\_
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_
9. The best time to phone you at this number: \_\_\_\_\_
10. Has your employer told you how to contact the health care professional who will review this questionnaire (please circle one): Yes No
11. Check the type of respirator you will use (you can check more than one category):
  - a. \_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
  - b. \_\_\_\_\_ Other type (for example: half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator on the job (please circle one): Yes No

If "yes", what type(s): \_\_\_\_\_  
\_\_\_\_\_

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

**Part A. Section 2.** (Mandatory)

Question 1 through 9 below must be answered by every employee who has been selected to use any type of respirator. (Please circle “yes” or “no”).

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month:

Yes    No

2. Have you ever had any of the following conditions

a. Seizures (fits):        Yes    No

b. Diabetes (sugar disease):    Yes    No

c. Allergic reactions that interfere with your breathing:        Yes    No

d. Claustrophobia (fear of closed-in places):        Yes    No

e. Trouble smelling odors:    Yes    No

3. Have you ever had any of the following pulmonary or lung problems

a. Asbestosis: Yes    No

b. Asthma:    Yes    No

c. Chronic bronchitis: Yes    No

d. Emphysema:        Yes    No

e. Pneumonia:        Yes    No

f. Tuberculosis:        Yes    No

g. Silicosis:        Yes    No

h. Pneumothorax (collapsed lung)    Yes    No

i. Lung cancer:        Yes    No

j. Broken ribs:        Yes    No

k. Any chest injuries or surgeries:    Yes    No

l. Any other lung problem that you’ve been told about:        Yes    No

4. Do you currently have any of the following symptoms of pulmonary or lung illness

a. Shortness of breath: Yes    No

b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes    No

c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes    No

d. Have to stop for breath when walking at your own pace on level ground:

Yes    No

e. Shortness of breath when washing or dressing yourself:    Yes    No

f. Shortness of breath that interferes with your job:        Yes    No

g. Coughing that produces phlegm (thick sputum):        Yes    No

h. Coughing that wakes you early in the morning:        Yes    No

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

- i. Coughing that occurs mostly when you are lying down:           Yes    No  
j. Coughing up blood in the last month:                                Yes    No

5. Do you currently have any of the following symptoms of pulmonary or lung illness  
(Continued)

- a. Wheezing:    Yes    No  
b. Wheezing that interferes with your job:                                Yes    No  
c. Chest pain when you breathe deeply:                                    Yes    No  
d. Any other symptoms that you think may be related  
to lung problems:    Yes    No

6. Have you ever had any of the following cardiovascular or heart problems

- a. Heart attack:    Yes    No  
b. Stroke:    Yes    No  
c. Angina:    Yes    No  
d. Heart failure:    Yes    No  
e. Swelling in your legs or feet (not caused by walking):                Yes    No  
f. Heart arrhythmia (heart beating irregularly):                            Yes    No  
g. High blood pressure:   Yes    No  
h. Any other heart problem that you've been told about:                 Yes    No

6. Have you ever had any of the following cardiovascular or heart symptoms

- a. Frequent pain or tightness in your chest:                                Yes    No  
b. Pain or tightness in your chest during physical activity:                Yes    No  
c. Pain or tightness in your chest that interferes with your job:            Yes    No  
d. In the past two years, have you noticed your heart  
  skipping or missing a beat:   Yes    No  
e. heartburn or indigestion that is not related to eating:                 Yes    No  
f. Any other symptoms that you think may be related  
to heart or circulation problems:    Yes    No

7. Do you currently take medication for any of the following problems

- a. Breathing or lung problems:    Yes    No  
b. Heart trouble:    Yes    No  
c. Blood pressure:   Yes    No  
d. Seizures (fits):   Yes    No



**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

8. If you've used a respirator, have you ever had any of the following problems (If you've never used a respirator, check the following space and go to question #9).

- 
- |   |     |    |
|---|-----|----|
| a. Eye irritation:  | Yes | No |
| b. Skin allergies or rashes:  | Yes | No |
| c. Anxiety:   | Yes | No |
| d. General weakness or fatigue:                                     | Yes | No |
| e. Any other problem that interferes with your use of a respirator: | Yes | No |

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire

Yes	No
-----	----

**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.**

10. Have you ever lost vision in either eye (temporarily or permanently): Yes No

11. Do you currently have any of the following vision problems:

- |                                     |     |    |
|-------------------------------------|-----|----|
| a. Wear contact lenses:             | Yes | No |
| b. Wear glasses:                    | Yes | No |
| c. Color blind:                     | Yes | No |
| d. Any other eye or vision problem: | Yes | No |

12. Have you ever had an injury to your ears, including a broken eardrum: Yes No

13. Do you currently have any of the following hearing problems

- |                                      |     |    |
|--------------------------------------|-----|----|
| a. Difficulty hearing:               | Yes | No |
| b. Wear a hearing aid:               | Yes | No |
| c. Any other hearing or ear problem: | Yes | No |

14. Have you ever had a back injury

Yes	No
-----	----

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

15. Do you currently have any of the following musculoskeletal problems
- |  |     |    |
|--|-----|----|
| a. Weakness in any of your arms, hands, legs or feet:                            | Yes | No |
| b. Back pain:  | Yes | No |
| c. Difficulty fully moving your arms and legs:                                   | Yes | No |
| d. Pain or stiffness when you lean forward or backward at the waist:             | Yes | No |
| e. Difficulty fully moving your head up or down:                                 | Yes | No |
| f. Difficulty moving your head side to side:                                     | Yes | No |
| g. Difficulty bending at your knees:   | Yes | No |
| h. Difficulty squatting to the ground:   | Yes | No |
| i. Climbing a flight of stairs or a ladder carrying more than 25 lbs.:           | Yes | No |
| j. Any other muscle or skeletal problem that interferes with using a respirator: | Yes | No |

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

Part B.

**Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.**

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes    No  
If "yes", do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes    No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g. gases, fumes or dust), or have you come into skin contact with hazardous chemicals: Yes    No  
If "yes", name the chemical if you know them: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Have you ever worked with any of the materials, or under any of the conditions listed below:

- |  |     |    |
|--|-----|----|
| a. Asbestos:   | Yes | No |
| b. Silica (e.g. in sandblasting):                            | Yes | No |
| c. Tungsten/cobalt (e.g. grinding or welding this material): | Yes | No |
| d. Beryllium:  | Yes | No |
| e. Aluminum:   | Yes | No |
| f. Coal (e.g. mining):                                       | Yes | No |
| g. Iron:   | Yes | No |
| h. Tin:  | Yes | No |
| i. Dusty environments:                                       | Yes | No |
| j. Any other hazardous exposures:                            | Yes | No |

If "yes", describe these exposures: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. List any second jobs or side businesses you have: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. List your previous occupations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

6. List your current and previous hobbies: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Have you been in the military services:                      Yes      No

If “yes”, were you exposed to biological or chemical agents (either in training or combat):                      Yes      No

8. Have you ever worked on a HAZMAT team                      Yes      No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications):  
   Yes                      No

If “yes”, name the medications if you know them: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Will you be using any of the following items with your respirator(s)

a. HEPA Filters:    Yes      No  
b. Canisters (e.g. gas masks):    Yes      No  
c. Cartridges:    Yes      No

11. How often are you expected to use the respirator(s) (please circle “yes” or ”no” for all answers that apply to you)

a. Escape only (no rescue):    Yes      No  
b. Emergency rescue only:    Yes      No  
c. Less than five (5) hours per week:    Yes      No  
d. Less than two (2) hours per day:    Yes      No  
e. Two (2) to four (4) hours per day:    Yes      No  
f. Over four (4) hours per day:    Yes      No

12. During the period you are using the respirator(s), is your work effort:

a. Light (less than 200 kcal per hour):                      Yes      No

If “yes”, how long does this period last during the average shift:  
\_\_\_\_\_ hrs. \_\_\_\_\_ mins.



**HEALTH & SAFETY PROCEDURES MANUAL**  
**RESPIRATORY MEDICAL EVALUATION**  
**QUESTIONNAIRE**

17. Describe any special or hazardous condition you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases): \_\_\_\_\_

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18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

\*\* Name of the first toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

\*\* Name of the second toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

\*\* Name of the third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

\*\* Name of any other toxic substances that you'll be exposed to while using your respirator(s):

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19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

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INSERT RESPIRATORY SELECTION CHART

# **HEALTH & SAFETY PROCEDURES MANUAL** **TELEPHONE INTERVIEW QUESTIONNAIRE**

DATE: \_\_\_\_\_

PERSON INTERVIEWED: \_\_\_\_\_  
(name) (company) (role in project)

PROJECT(S): \_\_\_\_\_  
\_\_\_\_\_  
(name of project) (work involved) (contract amt. & date completed)

1. CONTRACTOR'S ATTITUDE TOWARDS SAFETY? \_\_\_\_\_  
(Personal protective equipment, designated safety officer, safety plan?  
tailgate meetings?) \_\_\_\_\_

2. ANY PROBLEMS RELATED TO QUALITY OF WORK? \_\_\_\_\_  
(Rework? Engineer's acceptance of defective work?) \_\_\_\_\_

3. ATTENTION TO SCHEDULE & COMPLETION DATES? \_\_\_\_\_  
(Was a CPM Schedule used?) \_\_\_\_\_

4. APPROACH TO CHANGE ORDERS & CLAIMS \_\_\_\_\_  
(Timely submittal of proposals? cooperative?) \_\_\_\_\_

5. KNOWLEDGE OF WATER/WASTEWATER FACILITIES \_\_\_\_\_  
(Constructive suggestions? active during start-up?) \_\_\_\_\_

6. ATTENTION TO PUNCHLIST & WARRANTY WORK? \_\_\_\_\_

7. PROJECT MANAGEMENT CAPABILITIES? \_\_\_\_\_  
(Full-time superintendent, project management, scheduler, etc.)

\_\_\_\_\_  
(experience of these individuals? names?)

8. MANAGEMENT OF SUBCONTRACTOR'S & SUPPLIERS?

9. COOPERATION WITH OWNER, ENGINEER, INSPECTOR?

10. ALLOW TO BID FUTURE WORK? \_\_\_\_\_

11. LIST ANY OTHER GENERAL COMMENTS MADE BY

THE INTERVIEWEE: \_\_\_\_\_  
\_\_\_\_\_

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING GUIDE**

### **INSTRUCTOR INTRODUCTION**

The Hazard Communication Training Guide was developed to assist the instructor when conducting training as required by the Hazard Communication Standard. This training can be accomplished through the use of a video and lecture or a lecture only format. This manual will take you step by step through the required training to ensure compliance. Text in italics will contained notes for the instructor and are not intended to be read to the trainees.

The following format will be used to train new employees at the time of their initial assignment to work with a hazardous chemical and when a new hazard is introduced into the workplace.

### **TRAINING FORMAT**

All sections are mandatory and must be reviewed with the employee being trained. The training should be conducted in the following order:

1. An overview of the requirements contained in the Hazard Communication Regulation, including employee rights under the regulations and training requirements of the law.
2. Labels, signs, and warnings
3. How to read and understand Material Safety Data Sheets to obtain and use appropriate information.
4. Hazardous Material Identification System of labeling
5. NFPA 704 Marking System of labeling.
6. Locations in the work area where hazardous chemicals are present.
7. Locations and availability of the written hazard communication program, including the required list of hazardous chemicals, and the material safety data sheets (MSDS) required.
8. Company specific programs (Policy).
9. Safety rules established to protect the employees from exposure to hazardous chemicals.



## **HEALTH & SAFETY PROCEDURES MANUAL**

### **TRAINING GUIDE**

10. Review of specific Material Safety Data Sheets (MSDS) for information on the following

- a. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
- b. The physical and health hazards of the chemicals in the work area.
- c. The measures employees can take to protect themselves from the hazards through personal protective devices and safety equipment.
- d. Emergency procedures.

It is a company policy that retraining will be accomplished by covering sections 2 through 10 of the training format listed above.

**Important:** When any new hazard is introduced into the workplace, the training format (Section 6-10) must be used to train the affected employees [29CFR 1910.1200(h)].

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING GUIDE**

### **TRAINING PROGRAM**

#### **SECTION 1**

##### **Introduction**

It has been estimated that approximately 25 million workers, or 1 in 4 are exposed to chemical hazards in the workplace. To provide employees more information about these, the Occupational Safety and Health Administration has developed a Hazard Communication Standard. This standard, Title 29 CFR (Code of Federal Regulations) 1910.1200 is a federal requirement and is usually known as the “Right-To-Know” Standard. It was issued to ensure that chemical hazards in the workplace are properly evaluated, and that workers are informed of chemical hazards with which they may come in contact. The standard addresses 60,000 chemicals used in daily commerce.

Although Global Water Resources does not have this many chemicals on its premises, the hazard communication standard does require the company to evaluate the chemicals it does have on site. If the evaluation determines that any of these chemicals are hazardous, then the proper information must be communicated to you, the employee.

This communication is accomplished in several ways. The standard makes it an employer’s responsibility to establish a written comprehensive communication program. The program must provide information on container labeling, **MSDSs**, employee training, lists of hazardous chemicals in the workplace, how employees will be told of non-routine tasks, hazards associated with chemicals in unlabeled pipes, and how contractors will be informed of the same material given to regular associates.

Employee training is a critical part of the hazard communication standard. You will be learning about:

1. Requirements of OSHA Regulations
2. Operations involving the use of hazardous chemicals
3. Location and availability of the company’s written Hazard Communication Program
4. How to detect the presence of hazardous chemicals
5. Physical and health hazards of chemicals and routes of entry
6. How to protect yourself from hazardous chemicals
7. Labels, signs and warnings
8. Material Safety Data Sheets

# HEALTH & SAFETY PROCEDURES MANUAL

## TRAINING GUIDE

It is important that you ask questions during this training so that your understanding of all covered topics is complete.

It is your right to be informed of chemical hazards in the workplace. Be sure that you take advantage of the information that is available. With the cooperation of Global Water Resources and its employees, chemical hazards in the workplace can be addressed thoroughly and employees can work safely.

### SECTION 2

#### **Labels, Signs, and Warnings:**

Labels are a crucial component of the Hazard Communication Standard. They serve both as sources of information and as warnings when attached to a hazardous chemical container. This will allow you to protect yourself when exposure to a hazardous chemical occurs or in an emergency situation.

The “Right-To-Know” standard requires the chemical manufacturer to label each container of hazardous chemicals with the following information:

1. The identity of the hazardous chemical
2. Appropriate hazard warnings
3. Name and address of chemical manufacturer, importer, or other responsible party.

While the manufacturers label may meet OSHA standards, labels alone cannot give employees the total picture. For example:

A manufacturer may label a hazardous chemical such as acetone as flammable. However, this does not mean that acetone is not toxic. In the same way, the absence of a flammable label does not mean that acetone is not flammable.

The important thing to remember is that while labels are a vital part of the hazard communication standard and must be understood, they do not always include all existing information about a hazardous chemical. This information is completed by the **MSDS** which will be discussed later in this section.

Some chemicals, because of their particular hazards, are regulated under a special individual OSHA standard and must carry special labels. An example would be Vinyl Chloride which must be labeled as a cancer hazard. Sometimes a container may hold a mixture of two hazardous chemicals. If this is the case, the employer may choose to list both names on the identification label. Again, the **MSDS** will be referenced to the chemical name.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING GUIDE**

The Company must make sure that labels and warnings are legible and prominently displayed on the container, or readily available in the work area throughout each work shift. Labels must be in English. If associates speak other languages, employers may obtain signs that can be marked both in English and the second language. Labels, signs, and warnings help ensure your safety when working with or near hazardous chemicals. Ensure you read and understand them.

### **SECTION 3**

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

Refer the trainee to the sample MSDS in the “Right-To-Know” Training Packet.

An important part of the OSHA Hazard Communication Standard is the use of the Material Safety Data Sheet (MSDS). The MSDS is a technical bulletin that forms the core of the hazard communication program. The MSDS may include multiple pages that contain a variety of chemical hazard information including:

1. Chemical composition
2. Chemical and physical characteristics
3. Health and safety hazards
4. Precautions for safe handling and usage

The MSDS will serve as your reference library. Each chemical at this facility will have a separate MSDS. The MSDS must be readily assessable to all employees at all times. You will be instructed on MSDS location and accessibility. Since much of the information contained in an MSDS is highly technical in nature, this section will focus on the data that is most important for your immediate safety. If any employee desires more detailed/technical training, it will be handled on a case by case basis.

The MSDS format may be different depending on the specific chemical or manufacturer. OSHA allows a variety of MSDS formats, however, certain information must always appear.

#### **1. Chemical Identity Section**

A chemical identity section must be included. This lets the user know what specific hazardous chemical is in the container. If this is a single chemical, both the chemical name and the common name, if one exists, should be noted. If the hazardous chemical is a mixture, the names of each chemical ingredient must appear as well as the common name of the mixture itself.

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **TRAINING GUIDE**

### **2. Physical and Chemical Characteristics Section**

Physical and chemical characteristics must also be addressed. This includes: the chemical flash point, boiling point/vapor pressure, specific gravity, etc. This also includes information on the chemical's physical hazards such as the potential for fire or explosion.

### **3. Health Hazard Section**

The health hazard section of the MSDS is crucial for alerting workers to potential effects of chemicals in the workplace. Specific health hazards must be outlined here as well as signs and symptoms of exposure to the chemical. It must also be noted whether any medical conditions can be aggravated by exposure to a chemical, or whether a chemical is a suspected or known carcinogen. The health hazard section should also identify the primary routes of entry for the particular chemical. Routes of entry into the body include: inhalation, ingestion, and skin absorption.

### **4. Protective Information Section**

The protective information section must include any general precautions for safe handling and use of the chemical. For example, an MSDS for Xylene might indicate that this substance can be ignited by heat, sparks, or flame. You would then know not to smoke or use welding tools around Xylene. Appropriate hygienic practices must also be included such as washing hands after use or not eating or drinking in the areas the chemical is being used.

### **5. Procedures for the cleanup of leaks and spills**

Procedures for the cleanup of leaks and spills must appear, as well as protective measures to be taken during the repair or maintenance of chemical contaminated equipment.

### **6. Control Measures**

Control measures must be covered on the MSDS. This includes engineering controls such as ventilation, good work practices, and the proper personal protective equipment and clothing. This can include respirators, impervious clothing and protective gloves.

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### **7. Emergency and First Aid Measures**

Emergency and first aid measures must be covered. Finally the MSDS must contain the name, address and the telephone number of the chemical manufacturer, importer, or other responsible party who can provide additional information on the chemical and emergency procedures if necessary. Each MSDS must be dated to note when it was prepared and when any revisions were made.

The MSDS is a vital document, ensure you know the location of the MSDS Book.

### **SECTION 4**

#### **Hazardous Material Identification System of Labeling**

Refer the trainee to the HMIS Guide handout and show them an example of a HMIS Label.

The Hazardous Material Identification System (HMIS) is used to let you know what the hazards are of the materials you work with. The HMIS label contains a great deal of information summarized from the MSDS. The following is an explanation of the HMIS label and how you can use the HMIS system to make your workplace safer.

In the white bar at the top of the label, you should find the name of the material within the container. With this name you will be able to locate and review the MSDS for related information.

Below this white bar at the top of the HMIS label are three color coded bars: Blue, Red, and Yellow, representing the hazard categories of Health, Flammability, and Reactivity. In the left corner of each colored bar is a white box. The number in this box is the hazard rating/severity for that category.

The white bar at the bottom of the label is reserved for other information such as suggested PPE or identification of target organs, etc.)

The HMIS system shows hazard ratings on a scale of zero (0) to four (4).

Zero (0) means there is a minimal hazard

One (1) means a slight hazard

Two (2) warns of a moderate hazard

Three (3) means a serious hazard

Four (4) is warning of a severe hazard.

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### **Health Hazard Rating**

The number in the blue bar of the label is the health hazard rating. This number tells you the relative likelihood that the material will poison or damage the human body.

#### Rating Summary – Health

- 0- Minimal Hazard No significant risk to health
- 1- Slight Hazard Irritation or minor reversible injury possible
- 2- Moderate Hazard Temporary or minor injury may occur
- 3- Serious Hazard Major injury likely unless prompt action is taken and medical treatment is given
- 4- Severe Hazard Life threatening major or permanent damage may result from single exposure or repeated exposures

### **Flammability Hazard Rating**

The red bar on the label contains the flammability hazard rating. This tells you how easily the material can be set on fire and how quickly it will burn.

#### Rating Summary – Flammability

- 0- Minimal Hazard Materials which are normally stable and will not burn unless heated.
- 1- Slight Hazard Materials that must be preheated before ignition will occur. Flammable liquids in this category will have flash points at or above 200° F.
- 2- Moderate Hazard Material which must be moderately heated before ignition will occur, including flammable liquids with flash points at or above 100° F and below 200° F.
- 3- Serious Hazard Materials capable of ignition under almost all normal temperature conditions, including flammable liquids with flash points below 73° F and boiling points at or above 100° F as well as liquids with flash points at or above 73 °F and below.
- 4- Severe Hazard Very flammable gases or very volatile flammable liquids with flash points below 73°F and boiling points below 100°F.

### **Reactivity Hazard Rating**

The yellow bar on the label tells us the reactivity hazard of the material. It shows whether it will react violently and create a dangerous situation either by itself or with other materials.

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### **Rating Summary – Reactivity**

0- Minimal Hazard Materials which are normally stable, even under fire conditions, and which will not react with water.

1- Slight Hazard Materials which are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy violently.

2- Moderate Hazard Materials which in themselves are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water.

3- Serious Hazard Materials which are readily capable of detonation or explosive reaction, but require a strong initiating source, or which must be heated under confinement before initiation, or materials which react explosively with water.

4- Severe Hazard Materials that are readily capable of detonation or explosive decomposition at normal temperatures and pressures.

### **HMIS Summary**

The Hazardous Material Identification System is a complete program which gives you the information you need to protect yourself from potentially hazardous materials. Ensure that every material you handle is properly labeled, read the labels, understand the hazards of the materials you are using and use the recommended personal protection equipment.

When in doubt, or in need of further information, refer to the MSDS. If you still have questions, ask your supervisor.

## **SECTION 5**

### **NFPA 704 Marking System**

This system is based on the “704 diamond” which visually presents information on three categories of hazards: health, flammability, and self-reactivity, as well as the degree of severity of each hazard.

The ratings are assigned to reflect the reaction of the material to heat or involvement in fire. It also indicates two special hazards: reactivity with water and oxidizing ability.

The NFPA 704 Marking System can warn against hazards of materials under fire conditions that other information systems class as non-hazardous.



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For example, edible tallow (cow fat) produces toxic and irritating combustion products. It would be given a “2” degree of severity in the health hazard category, indicating the need for air-supplied respirators.

### Health Hazard Rating

The number in the blue diamond of the label is the health hazard rating.

#### Rating Summary – Health

Source: NFPA Fire Protection Handbook, Seventeenth Edition

0- Minimal Hazard Materials which on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

1- Slight Hazard Materials on which exposure would cause irritation but only minor residual injury. Requires use of approved air-purifying respirator.

2- Moderate Hazard Material which on intense or continued exposure could cause temporary but not chronic incapacitation or possible residual injury. Requires use of personal protective equipment with independent air supply.

3- Serious Hazard Material which on short exposure could cause serious temporary or residual injury. Requires protection from all contact.

4- Severe Hazard Materials which on a very short exposure could cause death or major residual injury. Too dangerous to be approached without specialized personal protective equipment.

### Flammability Hazard Rating

The red diamond on the label contains the flammability hazard rating.

#### Rating Summary – Flammability

Source: NFPA Fire Protection Handbook, Seventeenth Edition

0- Minimal Hazard Materials that will not burn.

1- Slight Hazard Materials that must be preheated before ignition can occur.

2- Moderate Hazard Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

3- Serious Hazard Liquids and solids that can be ignited under almost all ambient temperature conditions.

4- Severe Hazard Materials which will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or which is readily dispersed in air and which will burn readily.

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### **Reactivity Hazard Rating**

The yellow diamond on the label contains the reactivity hazard rating of the material.

### **Rating Summary – Reactivity**

Source: NFPA Fire Protection Handbook, Seventeenth Edition

0- Minimal Hazard Materials which in themselves are normally stable, even under fire exposure conditions and which are not reactive with water.

1- Slight Hazard Materials which in themselves are normally stable, but which can become unstable at elevated temperatures and pressures or which may react with water with some release of energy but not violently.

2- Moderate Hazard Materials which in themselves are normally unstable and readily undergo violent chemical change but do not detonate. Also materials which may react violently with water or which may form potentially explosive mixtures with water.

3- Serious Hazard Materials which in themselves are capable of detonation or explosive reaction but require strong initiating source or which must be heated under confinement before initiation or which react explosively with water.

4- Severe Hazard Materials which in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.

### **Special Information**

A letter W with a bar through it indicates that a material may have a hazardous reaction with water.

The letters OX indicate an oxidizer. An oxidizer may reduce the temperature at which a material ignites or make it burn at an increased rate.

## **SECTION 6**

### **Location of Hazardous Chemicals in the Workplace**

This section of the training program requires you inform the employee of operations in the work area where hazardous chemicals are present. Associates who perform maintenance must also be informed about operations in the work area where hazardous chemicals are present.

# **HEALTH & SAFETY PROCEDURES MANUAL**

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### **SECTION 7**

#### **Location of the Hazard Communication Program & MSDSs**

This section of the training program requires that you inform the trainee of the location and availability of the company's written Hazard Communication Program, including the required list of hazardous chemicals and the material safety data sheets required.

Read the following lines and fill in the blanks with the proper location.

1. Hazard Communication Program is located in . \_\_\_\_\_
2. The MSDSs are located in . \_\_\_\_\_

### **SECTION 8**

#### **Company Specific Program**

The Company has developed a written Hazard Communication Program. A copy of this program will be located at each facility. The program will be available for examination during normal business hours and any request for information, or questions should be directed to Safety Department.

MSDSs will be kept in a binder at each facility for all hazardous chemicals in use. They are available for employees during all working hours. Associates can request copies of MSDSs through the Safety Department.

The company intends to enforce the policies and procedures stated in the Hazard Communication Program. Serious infractions of these policies can result in disciplinary action.

### **SECTION 9**

#### **Safety Rules**

Safety will be a number one priority in this program. All of GLOBAL WATER RESOURCES's normal safety procedures will be followed. The company will provide the proper equipment such as gloves, safety/chemical glasses/goggles, ventilation, etc., to prevent employees from over exposure to the hazardous chemicals they use.

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### **Safety Rules**

There are several safety rules that must be followed when working with hazardous chemicals.

1. We must restrict admittance to areas where hazardous chemicals are used or stored.
2. Smoking, eating, or drinking should be avoided around chemicals.
3. Safety equipment and personal protective devices will be used as required by the company's PPE program or specific procedures.
4. All associates dealing with hazardous chemicals will thoroughly wash their hands before eating, drinking, or smoking.
5. In the event of a leak, spill, or other chemical emergency, you should follow your site specific Emergency Action Plan.

### **SECTION 10**

#### **Review of Specific MSDSs**

This section of the training program requires the trainer/manager to review with the associate, the information contained in the MSDSs of the hazardous chemicals the associate will work with or will be located in the associate's work area.

#### **TRAINING CONCLUSION**

Allow a few minutes for any questions. After the training session is over, you **MUST** have each trainee sign a Training Attendance Roster and forward the roster to the Safety Department for record keeping.

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### VDT EVALUATION

Employee Name:			Date:		
Occupation:			Average Daily Use:		
Ergonomic Issues			Possible Corrective Action		
1. Wrist/Hand Wrists bent or elbows other than 90 degrees when using keyboard.	Yes	No	Raise/Lower the keyboard Raise/lower the chair (keyboard height = elbow height)	R	A
Arms extended when using VDT hardware or accessories.			Provide adequate work surface for VDT hardware. (i.e., mouse) Provide a chair that does not interfere with the work surface. Remove obstructions under work surface.		
Arms unsupported or palms resting against sharp edge of work units.			Provide a wrist rest or arm support. Move computer from corner of desk. Push keyboard away from operator		
Repetitive hand/finger motion every few seconds, greater than 2 hours.			Provide 15 minutes or non-VDT work for every 2 hours of VDT work.		
Hammering or pounding the keys.			Relax work style.		
2. Neck/Head Head tilted backward.			Lower the monitor (eyes = top row on screen).Bifocals not adjusted for VDT use.		
Head tilted forward.			Raise the monitor.		
Neck twisted to view monitor or documents.			Align monitor and keyboard. Provide adjustable document holder.		
3. Legs Dangling legs.			Provide footrest		
4. Low Back Unsupported low back.			Provide an adjustable chair with lumbar support - Provide a lumbar pad		
5. Eyes Screen difficult to read.			Provide a glare screen. Reduce glare from windows or lights. Adjust the contrast and brightness.		

Key:

A = Adjusted

R = Recommended



**HEALTH & SAFETY PROCEDURES MANUAL**  
**WORK EXPERIENCE QUESTIONNAIRE AND**  
**QUALIFICATION STATEMENT**

Submitted to: \_\_\_\_\_

For: \_\_\_\_\_  
(name of project if applicable)

Designated Contact: \_\_\_\_\_ Date: \_\_\_\_\_  
(name of person to whom bid packages would be sent)

Official Company Name: \_\_\_\_\_  
.. Corporation                      .. Partnership                      .. Sole Proprietor

Principal Business Address: Mailing Address: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

1. If a Corporation:

    Date Incorporated: \_\_\_\_\_

    State of Incorporation: \_\_\_\_\_

Name of President and other Officers:

Name	Title
_____	_____
_____	_____

2. If a Partnership:

    Date of Organization: \_\_\_\_\_

    Type of Partnership: \_\_\_\_\_

3. If a Sole Proprietor:

    Number of years in business under current company name: \_\_\_\_\_





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7. a. Does your Company have a written policy for Equal Employment Opportunity (EEO)/Affirmative Action? \_\_\_\_\_ If yes, please attach a copy.

b. Does your Company have Minority/Women's Business Enterprise (MBE, WBE, etc.) status or other similar type status? \_\_\_\_\_. If yes, please state the specific program qualified for and locations where qualification is valid.

\_\_\_\_\_

\_\_\_\_\_

8. Number of full-time employees: Office: \_\_\_\_\_ Field: \_\_\_\_\_

9. Annual value of work your company has performed in the last three (3) years:  
\_\_\_\_\_ \$ \_\_\_\_\_ \$ \_\_\_\_\_ \$ \_\_\_\_\_  
(year) (year) (year)

Three Year Average: \$ \_\_\_\_\_

10. What percentage of No. 8 was in the area of water/wastewater facilities construction (treatment plants, pumping stations, intakes, etc.): \_\_\_\_\_%.

11. a. Number of full-time superintendents for water/wastewater projects: \_\_\_\_\_

b. Number of project managers for water/wastewater projects: \_\_\_\_\_

Please submit the work history, years of experience and credentials of these individuals.

12. Total value of work currently under contract: \$ \_\_\_\_\_

13. Approximate bonding capacity: \$ \_\_\_\_\_/per project, aggregate \$ \_\_\_\_\_.

a. Bonding company name/address:

\_\_\_\_\_

\_\_\_\_\_

b. Agent's name: \_\_\_\_\_

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14. Range of contract values your company is interested in bidding.

Minimum: \$ \_\_\_\_\_ Maximum: \$ \_\_\_\_\_

15. Other business your company actively participates in:

\_\_\_\_\_

\_\_\_\_\_

16. Has your organization ever failed to complete a construction contract?

\_\_\_\_\_

If yes, please provide full details.

17. Is your company concurrently engaged in litigation, arbitration, mediation or any other dispute resolution mechanism, relative to the company's involvement in a construction contract? \_\_\_\_\_. If yes, please provide details.

18. Please provide Income Statements and Balance Sheets for the company's three (3) most recent fiscal years.

19. Attachment No. 1 provide Company names and locations. This information represents potential work locations. Please circle the locations for which your company would like to be considered.

Please list any other areas within your company's operating range:

\_\_\_\_\_

20. Global Water Resources prepares and administers construction contracts for projects generally falling into the below listed categories. Please indicate, by circling the appropriate letter, the categories of work your company is interested in.

- a. renovation/construction of water treatment plants
- b. potable water pumping stations
- c. site work, site paving, and foundations for water storage tanks
- d. rehabilitation/construction of dams and reservoirs
- e. well installation
- f. raw water intakes/marine work
- g. large diameter distribution/transmission main installations
- h. electrical and control system installation and rehabilitation
- i. steel tank erection, Circle Styles Built: flat bottom, standpipes, elevated
- j. steel tank maintenance/painting
- k. other: \_\_\_\_\_

**HEALTH & SAFETY PROCEDURES MANUAL**  
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**QUALIFICATION STATEMENT**

21. List the types of work which will be performed by your company's own forces:

---

---

22. List work your company will subcontract:

---

---

23. Complete the attached work experience schedule listing your most recent projects in the categories selected in No. 20.

**(NOTE: Water/wastewater experience is of importance. Submittal of an equivalent project listing form is acceptable provided it contains the requested information.)**

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORK EXPERIENCE SCHEDULE**

PROJECT DATES:

<b>Start</b>	<b>Actual/Anticipated Completion</b>	<b>Contract Amount</b>	<b>Project Titles and Description of Work Performed *</b>	<b>Owner's Name, Address, Phone Number</b>	<b>Engineer Name and Phone Number</b>

**\*Please include applicable information relative to project size, i.e., station capacity, reservoir size, etc.**

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Injury and Illness Prevention Program Checklists**

These checklists are by no means inclusive. You should add to them or delete items that do not apply to your operations. However, carefully consider each item as you come to it before making your decision.

#### **Employer Posting**

\_\_\_\_\_ Is the /OSHA poster (or State equivalent) Safety and Health Protection on the job displayed in a prominent location where all employees are likely to see it?

\_\_\_\_\_ Are emergency telephone numbers posted where they can be readily found in case of emergency?

\_\_\_\_\_ Where employees may be exposed to any toxic substances or harmful physical agents, has appropriate information concerning employee access to medical and exposure records and Material Safety Data Sheets been posted or otherwise made readily available to affected employees?

\_\_\_\_\_ Are signs concerning exiting from buildings, room capacities, floor loading, exposures to x-ray, microwave, or other harmful radiation or substances posted where appropriate?

#### **Are other State & Federal posters properly displayed, such as:**

\_\_\_\_\_ Industrial Welfare Commission orders regulating wages, hours, and working conditions

\_\_\_\_\_ Discrimination in employment prohibited by law

\_\_\_\_\_ Notice to employees of unemployment and disability insurance

\_\_\_\_\_ Payday notice

\_\_\_\_\_ Summary of occupational injuries and illnesses posted in the month of February

\_\_\_\_\_ Notice of compensation carrier

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## **WORKPLACE INSPECTION CHECKLIST**

### **Permit Requirements**

- \_\_\_\_\_ Is a permit obtained for excavations which are 5 feet or deeper and into which a person is required to descend?
- \_\_\_\_\_ Is a permit obtained for construction of any building, structure, scaffolding or false work more than 3 stories high or the equivalent height?
- \_\_\_\_\_ Is a permit obtained for demolition of any building, structure, or the dismantling of scaffolding or false work more than 3 stories high or the equivalent height?

### **Recordkeeping**

- \_\_\_\_\_ Are all occupational injuries or illnesses, except minor injuries requiring only first aid, being recorded as required on the OSHA Form 300?
- \_\_\_\_\_ Are employee medical records and records of employee exposure to hazardous substances or harmful physical agents current?
- \_\_\_\_\_ Have arrangements been made to maintain required records for the legal period of time for each specific type of record (Some records must be maintained for at least 40 years)?
- \_\_\_\_\_ Are operating permits and records current for such items as elevators, air pressure tanks, liquefied petroleum gas tanks?
- \_\_\_\_\_ Are carcinogen use reports filed with appropriate State & Federal OSHA as required (Contact the nearest OSHA office for the list of regulated carcinogens)?
- \_\_\_\_\_ Are employee safety and health training records maintained?
- \_\_\_\_\_ Is documentation of safety inspections and corrections maintained?
- \_\_\_\_\_ Are safety committee meeting records maintained?

# **HEALTH & SAFETY PROCEDURES MANUAL** **WORKPLACE INSPECTION CHECKLIST**

## **Injury & Illness Prevention Program**

- \_\_\_\_\_ Do you have a written, effective injury and illness prevention program?
- \_\_\_\_\_ Do you have a person who is responsible and has authority for over all activities of the injury and illness prevention program?
- \_\_\_\_\_ Do you have a system for identifying and evaluating your workplace hazards?
- \_\_\_\_\_ Do you systematically correct these hazards in a timely manner?
- \_\_\_\_\_ Do you provide training in both general and specific safe work practices?
- \_\_\_\_\_ Do you encourage employee participation in health and safety matters?
- \_\_\_\_\_ Do you maintain an ongoing safety training program?
- \_\_\_\_\_ Do you have a system in place that ensures employees will be recognized for safe and healthful work practices?
- \_\_\_\_\_ Will employees be disciplined for unsafe safety or health acts?
- \_\_\_\_\_ Is there a labor-management safety committee?
- \_\_\_\_\_ If there is no safety committee, is there in place a system for communicating safety and health concerns to employees?
- \_\_\_\_\_ On construction sites. is a Code of Safe Practices posted?
- \_\_\_\_\_ Are "toolbox" meetings conducted on a scheduled and consistent basis?

## **Medical Services & First Aid**

- \_\_\_\_\_ Do you require each employee to have a pre-employment physical examination?
- \_\_\_\_\_ Is there a hospital, clinic, or infirmary for medical care in proximity of your workplace?
- \_\_\_\_\_ If medical and first aid facilities are not in proximity of your workplace. is at least one employee on each shift currently qualified to render first aid?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Are medical personnel readily available for advice and consultation on matters of employee health?

\_\_\_\_\_ Are emergency phone numbers posted?

\_\_\_\_\_ Are first aid kits easily accessible to each work area. with necessary supplies available periodically inspected and replenished as needed

\_\_\_\_\_ Have first aid kit supplies been approved by a physician. indicating they are adequate for a particular area or operation?

\_\_\_\_\_ Are means provided for quick trenching or flushing of the eyes and body in areas where corrosive liquids or materials are handled?

### **Fire Protection**

\_\_\_\_\_ Do you have a fire prevention plan?

\_\_\_\_\_ Does your plan describe the type of fire protection equipment and/or systems?

\_\_\_\_\_ Have you established practices and procedures to control potential fire hazards and ignition sources?

\_\_\_\_\_ Are employees aware of the fire hazards of the materials and processes to which they are exposed?

\_\_\_\_\_ Is your local fire department well acquainted with your facilities, location and specific hazards?

\_\_\_\_\_ If you have a fire alarm system, is it certified as required by state law?

\_\_\_\_\_ If you have a fire alarm system, is it tested at least annually?

\_\_\_\_\_ If you have interior stand pipes and valves, are they inspected regularly?

\_\_\_\_\_ If you have outside private fire hydrants, are they flushed at least once a year on a routine preventive maintenance schedule?

\_\_\_\_\_ Are fire doors and shutters in good operating condition



## **HEALTH & SAFETY PROCEDURES MANUAL** **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are fire doors and shutters unobstructed and protected against obstructions, including their counterweights?
- \_\_\_\_\_ Are automatic sprinkler system water control valves, air and water pressures checked weekly/ periodically as required?
- \_\_\_\_\_ Is maintenance of automatic sprinkler systems assigned to responsible persons or to a sprinkler contractor?
- \_\_\_\_\_ Are sprinkler heads protected by metal guards, when exposed to physical damage?
- \_\_\_\_\_ Is proper clearance maintained below sprinkler heads?
- \_\_\_\_\_ Are portable fire extinguishers provided in adequate numbers and types?
- \_\_\_\_\_ Are fire extinguishers mounted in readily accessible locations?
- \_\_\_\_\_ Are fire extinguishers mounted in accordance with OSHA regulations?
- \_\_\_\_\_ Are fire extinguishers recharged regularly and noted on the inspection tag?
- \_\_\_\_\_ Are employees periodically instructed in the use of extinguishers and fire protection procedures?

### **Personal Protective Equipment & Clothing**

- \_\_\_\_\_ Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?
- \_\_\_\_\_ Are approved safety glasses required to be worn at all times in areas where there is risk of eye injuries such as punctures, abrasions, contusions or burns?
- \_\_\_\_\_ Are employees who need corrective lenses (glasses, contact lenses) in working environments with harmful exposures, required to wear only approved safety glasses protective goggles, or to use other medically approved precautionary procedures?
- \_\_\_\_\_ Are protective gloves, aprons, shields, or other means provided against cuts, corrosive liquids and chemicals?

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## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are hard hats provided and worn where danger of falling objects exists?
- \_\_\_\_\_ Are hard hats inspected periodically for damage to the shell and suspension system?
- \_\_\_\_\_ Is appropriate foot protection required where there is risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating actions?
- \_\_\_\_\_ Are approved respirators provided for regular or emergency use where needed?
- \_\_\_\_\_ Is all protective equipment maintained in a sanitary condition and ready for use?
- \_\_\_\_\_ Do you have eye wash facilities and a quick drench shower within a work area where employees are exposed to injurious corrosive materials?
- \_\_\_\_\_ Where special equipment is needed for electrical workers, is it available?
- \_\_\_\_\_ When lunches are eaten on the premises, are they eaten in areas where there is no exposure to toxic materials or other health hazards
- \_\_\_\_\_ Is protection against the effects of occupational noise exposure provided when sound levels exceed those of the State & Federal OSHA noise standard
- \_\_\_\_\_ Are adequate work procedures, protective clothing and equipment provided and used when cleaning up spilled toxic or otherwise hazardous materials or liquids?

### **General Work Environment**

- \_\_\_\_\_ Are all worksites clean and orderly?
- \_\_\_\_\_ Are work surfaces kept dry or appropriate means taken to assure the surfaces are slip-resistant?
- \_\_\_\_\_ Are all spilled materials or liquids cleaned up immediately?
- \_\_\_\_\_ Is combustible scrap, debris and waste stored safely and removed from the worksite promptly?
- \_\_\_\_\_ Is accumulated combustible dust routinely removed from elevated surfaces, including the overhead structure of buildings?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Is combustible dust cleaned up with a vacuum system to prevent the dust going into suspension?
- \_\_\_\_\_ Is metallic or conductive dust prevented from entering or accumulating on or around electrical enclosures or equipment?
- \_\_\_\_\_ Are covered metal waste cans used for oily and paint-soaked waste?
- \_\_\_\_\_ Are all oil and gas fired devices equipped with flame failure controls that will prevent flow of fuel if pilots or main burners are not working?
- \_\_\_\_\_ Are paint spray booths, dip tanks and the like, cleaned regularly?
- \_\_\_\_\_ Are the minimum number of toilets and washing facilities provided?
- \_\_\_\_\_ Are all toilets and washing facilities clean and sanitary?
- \_\_\_\_\_ Are all work areas adequately illuminated?
- \_\_\_\_\_ Are pits and floor openings covered or otherwise guarded?

#### **Walkways**

- \_\_\_\_\_ Are aisles and passageways kept clear and appropriate clearance units maintained?
- \_\_\_\_\_ Are aisles and walkways marked as appropriate?
- \_\_\_\_\_ Are wet surfaces covered with non-slip materials?
- \_\_\_\_\_ Are holes in the floor, sidewalk or other walking surface repaired properly covered or otherwise made safe?
- \_\_\_\_\_ Is there safe clearance for walking in aisles where motorized mechanical handling equipment is operating?
- \_\_\_\_\_ Are spilled materials cleaned up immediately?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are materials or equipment stored in such a way that sharp projectiles will not interfere with the walkway?
- \_\_\_\_\_ Are changes of direction or elevations readily identifiable?
- \_\_\_\_\_ Are aisles or walkways that pass near moving or operating machinery, welding operations or similar operations arranged so employees will not be subjected to potential hazards?
- \_\_\_\_\_ Is adequate headroom provided for the entire length of any aisle or walkway?
- \_\_\_\_\_ Are standard guardrails provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground?
- \_\_\_\_\_ Are bridges or guarded walkways provided over conveyors and similar hazards?

#### **Floor & Wall Openings**

- \_\_\_\_\_ Are floor openings guarded by a cover, guardrail, or equivalent on all sides (except at entrance to stairways or ladders)?
- \_\_\_\_\_ Are toe boards installed around the edges of a permanent floor opening (where persons may pass below the opening)?
- \_\_\_\_\_ Are skylight screens of such construction and mounting that they will withstand a load of at least 200 pounds?
- \_\_\_\_\_ Is the glass in windows, doors, glass walls, which are subject to human impact, of sufficient thickness and type for the condition of use?
- \_\_\_\_\_ Are grates or similar covers over floor openings, such as floor drains, of such design that foot traffic or rolling equipment will not be affected by the grate spacing?
- \_\_\_\_\_ Are unused portions of service pits and pits not actually in use either covered or protected by guardrails or equivalent?
- \_\_\_\_\_ Are manhole covers, trench covers and similar covers, plus their supports, designed to carry a truck rear axle load of at least 20,000 pounds when located in roadways and subject to vehicle traffic?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Are floor or wall openings in fire resistive construction provided with doors or covers compatible with the fire rating of the structure, and provided with self-closing features when appropriate?

### **Stairs & Stairways**

\_\_\_\_\_ Are standard stair rails or handrails on all stairways having four or more risers?

\_\_\_\_\_ Are all stairways at least 22 inches wide?

\_\_\_\_\_ Do stairs have at least a 6.6" overhead clearance?

\_\_\_\_\_ Do stairs angle no more than 50 and no less than 30 degrees?

\_\_\_\_\_ Are stairs of hollow-pan type treads and landings filled to noising level with solid material?

\_\_\_\_\_ Are step risers on stairs uniform from top to bottom, with no riser spacing greater than 7 -1/2 inches?

\_\_\_\_\_ Are steps on stairs and stairways designed or provided with a surface that renders them slip resistant?

\_\_\_\_\_ Are stairway handrails located between 30 and 34 inches above the leading edge of stair treads?

\_\_\_\_\_ Do stairway handrails have at least 1-1/2 inches clearance between the handrails and the wall or surface they are mounted on?

\_\_\_\_\_ Are stairway handrails capable of withstanding a load of 200 pounds applied in any direction?

\_\_\_\_\_ Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?

\_\_\_\_\_ Do stairway landings have a dimension measured in the direction of travel, at least equal to the width of the stairway?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is the vertical distance between stairway landings limited to 12 feet or less?

\_\_\_\_\_ Is a stairway provided to the roof of each building four or more stories in height, provided the roof slope is 4 in 12 or less?

### **Elevated Surfaces**

\_\_\_\_\_ Are signs posted, when appropriate, showing the elevated surface load capacity?

\_\_\_\_\_ Are surfaces elevated more than 30 inches above the floor or ground provided with standard guardrails?

\_\_\_\_\_ Are all elevated surfaces (beneath which people or machinery could be exposed to falling objects provided with standard 4 inch toe-board?

\_\_\_\_\_ Is a permanent means of access and egress provided to elevated storage and work surfaces?

\_\_\_\_\_ Is required headroom provided where necessary?

\_\_\_\_\_ Is material on elevated surfaces piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading?

\_\_\_\_\_ Are dock boards or bridge plates used when transferring materials between docks and trucks or rail cars?

### **Exiting or Egress**

\_\_\_\_\_ Are all exits marked with an exit sign and illuminated by a reliable light source?

\_\_\_\_\_ Are the directions to exits, when not immediately apparent. marked with visible signs?

\_\_\_\_\_ Are doors, passageways or stairways. that are neither exits nor access to exits and which could be mistaken for exits. appropriately marked "NOT AN EXIT," "TO BASEMENT," "STOREROOM." and the like?

\_\_\_\_\_ Are exit signs provided with the word "EXIT" in lettering at least 5 inches high and the stroke of the lettering at least 1/2 inch wide?

\_\_\_\_\_ Are exit doors side-hinged?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are all exits kept free of obstructions?
- \_\_\_\_\_ Are at least two means of egress provided from elevated platforms, pits or rooms where the absence of a second exit would increase the risk of injury from hot, poisonous, corrosive, suffocating, flammable, or explosive substances?
- \_\_\_\_\_ Are there sufficient exits to permit prompt escape in case of emergency?
- \_\_\_\_\_ Are special precautions taken to protect employees during construction and repair operations?
- \_\_\_\_\_ Is the number of exits from each floor of a building, and the number of exits from the building itself appropriate for the building occupancy load?
- \_\_\_\_\_ Are exit stairways which are required to be separated from other parts of a building, enclosed by at least two-hour fire-resistive construction in buildings more than four stories in height, and not less than one-hour fire resistive construction elsewhere?
- \_\_\_\_\_ When ramps are used as part of required exiting from a building, is the ramp slope limited to 1 foot vertical and 12 feet horizontal?
- \_\_\_\_\_ Where exiting will be through frameless glass doors, glass exit doors, storm doors and such, are the doors fully tempered and meeting safety requirements for human impact?

### **Exit Doors**

- \_\_\_\_\_ Are doors which are required to serve as exits designed and constructed so that the way of exit travel is obvious and direct?
- \_\_\_\_\_ Are windows which could be mistaken for exit doors, made inaccessible by means of barriers or railings?
- \_\_\_\_\_ Are exit doors open from the direction of exit travel, without the use of a key or any special knowledge or effort, when the building is occupied?
- \_\_\_\_\_ Is a revolving, sliding or overhead door prohibited from serving as a required exit door?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Where panic hardware is installed on a required exit door, will it allow the door to open by applying a force of 15 pounds or less in the direction of the exit traffic?

\_\_\_\_\_ Are doors on cold storage rooms provided with an inside release mechanism which will release the latch and open the door even if it's padlocked or other device is locked on the outside?

\_\_\_\_\_ Where exit doors open directly onto any street, alley or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?

\_\_\_\_\_ Are doors that swing in both directions and are located between rooms where there is frequent traffic, provided with viewing panels in each door?

#### **Portable Ladders**

\_\_\_\_\_ Are all ladders maintained in good condition, joints between steps and side rails tight, all hardware and fittings securely attached, and moveable parts operating freely without binding or undue play?

\_\_\_\_\_ Are non-slip safety feet provided on each ladder?

\_\_\_\_\_ Are non-slip safety feet provided on each metal or rung ladder?

\_\_\_\_\_ Are ladder rungs and steps free of grease and oil?

\_\_\_\_\_ Is it prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded?

\_\_\_\_\_ Is it prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height?

\_\_\_\_\_ Are employees instructed to face the ladder when ascending or descending?

\_\_\_\_\_ Are employees prohibited from using ladders that are broken, missing steps, rungs, or cleats, broken side rails or other faulty equipment?

\_\_\_\_\_ Are employees instructed not to use the top step of ordinary stepladders as a step?



## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ When portable rung ladders are used to gain access to elevated platforms, roofs and the like, does the ladder always extend at least 3 feet above the elevated surface?

\_\_\_\_\_ When portable rung ladders are used to gain access to elevated platforms, roofs and the like, does the ladder always extend at least 3 feet above the elevated surface?

\_\_\_\_\_ Is it required that when portable rung or cleat type ladders are used, the base is so placed that slipping will not occur or it is lashed or otherwise held in place?

\_\_\_\_\_ Are portable metal ladders legibly marked with signs reading "CAUTION – DO Not Use Around Electrical Equipment" or equivalent wording?

\_\_\_\_\_ Are employees prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes?

\_\_\_\_\_ Are employees instructed to only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder)?

\_\_\_\_\_ Are metal ladders inspected for damage?

\_\_\_\_\_ Are the rungs of ladders uniformly spaced at 12 inches, center to center?

#### **Hand Tools & Equipment**

\_\_\_\_\_ Are all tools and equipment (both company and employee-owned) used by employees at their workplace in good condition?

\_\_\_\_\_ Are hand tools such as chisels or punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?

\_\_\_\_\_ Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?

\_\_\_\_\_ Are worn or bent wrenches replaced regularly?

\_\_\_\_\_ Are appropriate handles used on files and similar tools?

\_\_\_\_\_ Are employees made aware of the hazards caused by faulty or improperly used hand tools?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are appropriate safety glasses, face shields and similar equipment used while using hand tools or equipment which might produce flying materials or be subject to breakage?
- \_\_\_\_\_ Are jacks checked periodically to assure they are in good operating condition?
- \_\_\_\_\_ Are tool handles wedged tightly in the head of all tools?
- \_\_\_\_\_ Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?
- \_\_\_\_\_ Are tools stored in a dry, secure location where they won't be tampered with?
- \_\_\_\_\_ Is eye and face protection used when driving hardened or tempered spuds or nails?

#### **Portable (Power Operated) Tools & Equipment**

- \_\_\_\_\_ Are grinders, saws and similar equipment provided with appropriate safety guards?
- \_\_\_\_\_ Are power tools used with the correct shield, guard or attachment recommended by the manufacturer?
- \_\_\_\_\_ Are portable circular saws equipped with guards above and below the base shoe?
- \_\_\_\_\_ Are circular saw guards checked to assure they are not wedged up, thus leaving the lower portion of the blade unguarded?
- \_\_\_\_\_ Are rotating or moving parts of equipment guarded to prevent physical contact?
- \_\_\_\_\_ Are all cord-connected, electrically-operated tools and equipment effectively grounded or of the approved double insulated type?
- \_\_\_\_\_ Are effective guards in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, air compressors and the like?
- \_\_\_\_\_ Are portable fans provided with full guards or screens having openings of 1/2 inch or less?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is hoisting equipment available and used for lifting heavy objects. and are hoist ratings and characteristics appropriate for the task?

\_\_\_\_\_ Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits, used during periods of construction?

\_\_\_\_\_ Are pneumatic and hydraulic hoses on power-operated tools checked regularly for deterioration or damage?

#### **Abrasive Wheel Equipment Grinders**

\_\_\_\_\_ Is the work rest used and kept adjusted to within 1/8 inch of the wheel?

\_\_\_\_\_ Is the adjustable tongue on the top side of the grinder used and kept adjusted to within 1/4 inch of the wheel?

\_\_\_\_\_ Do side guards cover the spindle, nut, and flange and 75 percent of the wheel diameter?

\_\_\_\_\_ Are bench and pedestal grinders permanently mounted?

\_\_\_\_\_ Are goggles or face shields always worn when grinding?

\_\_\_\_\_ Is the maximum RPM rating of each abrasive wheel compatible with the RPM rating of the grinder motor?

\_\_\_\_\_ Are fixed or permanently mounted grinders connected to their electrical supply system with metallic conduit or by other permanent wiring method?

\_\_\_\_\_ Does each grinder have an individual on and off control switch?

\_\_\_\_\_ Is each electrically operated grinder effectively grounded?

\_\_\_\_\_ Before new abrasive wheels are mounted are they visually inspected and ring tested?

\_\_\_\_\_ Are dust collectors and powered exhausts provided on grinders used in operations that produce large amounts of dust/

\_\_\_\_\_ Are splash guards mounted on grinders that use coolant, to prevent the coolant reaching employees?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is cleanliness maintained around grinders?

### **Powder Actuated Tools**

\_\_\_\_\_ Are employees who operate powder-actuated tools trained in their use and carry valid operator cards?

\_\_\_\_\_ Do the powder-actuated tools being used have written approval of the Division of Occupational Safety and Health?

\_\_\_\_\_ Is each powder-actuated tool stored in its own locked container when not being used?

\_\_\_\_\_ Is a sign at least 7" by 10" with bold type reading "POWDER ACTUATED TOOL IN USE" conspicuously posted when the tool is being used?

\_\_\_\_\_ Are powder-actuated tools left unloaded until they are actually ready to be used?

\_\_\_\_\_ Are powder-actuated tools inspected for obstructions or defects each day before use?

\_\_\_\_\_ Do powder-actuated tool operators have and use appropriate personal protective equipment such as hard hats, safety goggles, safety shoes and ear protectors?

### **Machine Guarding**

\_\_\_\_\_ Is there a training program to instruct employees on safe methods of machine operation?

\_\_\_\_\_ Is there adequate supervision to ensure that employees are following safe machine operating procedures?

\_\_\_\_\_ Is there a regular program of safety inspection of machinery and equipment?

\_\_\_\_\_ Is all machinery and equipment kept clean and properly maintained?

\_\_\_\_\_ Is sufficient clearance provided around and between machines to allow for safe operations, set up and servicing, material handling and waste removal?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Is equipment and machinery securely placed and anchored when necessary, to prevent tipping or other movement that could result in personal injury?
- \_\_\_\_\_ Is there a power shut-off switch within reach of the operator's position at each machine?
- \_\_\_\_\_ Can electric power to each machine be locked out for maintenance, repair or security?
- \_\_\_\_\_ Are the non-current-carrying metal parts of electrically operated machines bonded and grounded?
- \_\_\_\_\_ Are foot-operated switches guarded or arranged to prevent accidental actuation by personnel or falling objects?
- \_\_\_\_\_ Are manually operated valves and switches controlling the operation of equipment and machines clearly identified and readily accessible?
- \_\_\_\_\_ Are all emergency stop buttons colored red?
- \_\_\_\_\_ Are all pulleys and belts that are within 7 feet of the floor or working level properly guarded?
- \_\_\_\_\_ Are all moving chains and gears properly guarded?
- \_\_\_\_\_ Are splash guards mounted on machines that use coolant, to prevent the coolant from reaching employees?
- \_\_\_\_\_ Are methods provided to protect the operator and other employees in the machine area from hazards created at the point of operation, in-going nip points, rotating parts, flying chips, and sparks?
- \_\_\_\_\_ Are machinery guards secure and arranged so they do not offer a hazard in their use?
- \_\_\_\_\_ If special hand tools are used for placing and removing material, do they protect the operator's hands?
- \_\_\_\_\_ Are revolving drums, barrels and containers required to be guarded by an enclosure that is interlocked with the drive mechanism, so that revolution cannot occur unless the guard enclosure is in place, so guarded?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Do arbors and mandrels have firm and secure bearings and are they free from play?

\_\_\_\_\_ Are provisions made to prevent machines from automatically starting when power is restored after a power failure or shutdown?

\_\_\_\_\_ Are machines constructed so as to be free from excessive vibration when the largest size tool is mounted and run at full speed?

\_\_\_\_\_ If machinery is cleaned with compressed air, is air pressure controlled and personal protective equipment or other safeguards used to protect operators and other workers from eye and body injury?

\_\_\_\_\_ Are fan blades protected with a guard having openings no larger than 1/2 inch, when operating within 7 feet of the floor?

\_\_\_\_\_ Are saws used for ripping equipped with anti-kick back devices and spreaders?

\_\_\_\_\_ Are radial arm saws so arranged that the cutting head will gently return to the back of the table when released?

#### **Lockout Tag-out Procedures**

\_\_\_\_\_ Is all machinery or equipment capable of movement required to be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations whenever required?

\_\_\_\_\_ Is the locking-out of control circuits in lieu of locking-out main power disconnects prohibited?

\_\_\_\_\_ Are all equipment control valve handles provided with a means for locking out?

\_\_\_\_\_ Does the lock-out procedure require that stored energy (i.e. mechanical, hydraulic, air) be released or blocked before equipment is locked out for repairs?

\_\_\_\_\_ Are appropriate employees provided with individually keyed personal safety locks?

\_\_\_\_\_ Are employees required to keep personal control of their key(s) while they have safety locks in use?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is it required that employees check the safety of the lockout by attempting a start up after making sure no persons are exposed?

### **Where the means for disconnecting the power to equipment does not also disconnect the electrical control circuit:**

\_\_\_\_\_ Are the appropriate electrical enclosures identified?

\_\_\_\_\_ Are means provided to assure the control circuit can also be disconnected and locked out?

### **Welding, Cutting & Brazing**

\_\_\_\_\_ Are only authorized and trained personnel permitted to use welding, cutting or bring equipment?

\_\_\_\_\_ Do all Operators have a copy of the appropriate operating instructions and are they trained and directed to follow them?

\_\_\_\_\_ Are compressed gas cylinders regularly examined for obvious signs of defects, deep rusting or leakage?

\_\_\_\_\_ Is care used in handling and storage of cylinders, safety valves, relief valves and the like, to prevent damage?

\_\_\_\_\_ Are precautions taken to prevent mixture of air or oxygen with flammable gases, except at a burner or in a standard torch?

\_\_\_\_\_ Are only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) used?

\_\_\_\_\_ Are cylinders kept away from sources of heat?

\_\_\_\_\_ Is it prohibited to use cylinders as rollers or supports?

\_\_\_\_\_ Are empty cylinders appropriately marked, their valves closed and valve protection caps on?

\_\_\_\_\_ Are signs reading: DANGER – NO SMOKING, MATCHES, OR OPEN LIGHTS, or the equivalent, posted?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are cylinders, cylinder valves, couplings, regulators, hoses and apparatus kept free of oily or greasy substances?
- \_\_\_\_\_ Is care taken not to drop or strike cylinders?
- \_\_\_\_\_ Unless secured on special trucks, are regulators removed and valve-protection caps put in place before moving cylinders?
- \_\_\_\_\_ Do cylinders without fixed hand wheels have keys, handles, or non-adjustable wrenches on stem valves when in service?
- \_\_\_\_\_ Are liquefied gases stored and shipped valve-end up with valve covers in place?
- \_\_\_\_\_ Are employees instructed to never crack a fuel-gas cylinder valve near sources of ignition?
- \_\_\_\_\_ Before a regulator is removed, is the valve closed and gas released from the regulator?
- \_\_\_\_\_ Is red used to identify the acetylene (and other fuel-gas) hose, green for oxygen hose, and black for inert gas and air hose?
- \_\_\_\_\_ Are pressure-reducing regulators used only for the gas and pressures for which they are intended?
- \_\_\_\_\_ Is open circuit (No Load) voltage of arc welding and cuffing machines as low as possible and not in excess of the recommended limits?
- \_\_\_\_\_ Under wet conditions, are automatic controls for reducing no-load voltage used?
- \_\_\_\_\_ Is grounding of the machine frame and safety ground connections of portable machines checked periodically?
- \_\_\_\_\_ Are electrodes removed from the holders when not in use?
- \_\_\_\_\_ Is it required that electric power to the welder be shut off when no one is in attendance?
- \_\_\_\_\_ Is suitable fire extinguishing equipment available for immediate use?



## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Is the welder forbidden to coil or loop welding electrode cable around his/her body?
- \_\_\_\_\_ Are wet welding machines thoroughly dried and tested before being used?
- \_\_\_\_\_ Are work and electrode lead cables frequently inspected for wear and damage, and replaced when needed?
- \_\_\_\_\_ Do means for connecting cables' lengths have adequate insulation?
- \_\_\_\_\_ When the object to be welded cannot be moved and fire hazards cannot be removed, are shields used to confine heat, sparks and slag?
- \_\_\_\_\_ Are fire watchers assigned when welding or cutting is performed, in locations where a serious fire might develop?
- \_\_\_\_\_ Are combustible floors kept wet, covered by damp sand, or protected by fire-resistant shields?
- \_\_\_\_\_ When floors are wet down, are personnel protected from possible electrical shock?
- \_\_\_\_\_ When welding is done on metal walls, are precautions taken to protect combustibles that may be on the other side?
- \_\_\_\_\_ Before hot work is begun, are used drums, barrels, tanks and other containers so thoroughly cleaned that no substances remain that could explode, ignite or produce toxic vapors?
- \_\_\_\_\_ Do eye protection, helmets, hand shields and goggles meet appropriate standards?
- \_\_\_\_\_ Are employees exposed to the hazards created by welding, cutting or brazing operations protected with personal protective equipment and clothing?
- \_\_\_\_\_ Is a check made for adequate ventilation in and where welding or cutting is performed?
- \_\_\_\_\_ When working in confined spaces are environmental monitoring tests taken and means provided for quick removal of welders in case of an emergency?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Compressors & Compressed Air**

- \_\_\_\_\_ Are compressors equipped with pressure relief valves and pressure gauges?
- \_\_\_\_\_ Are compressor air intakes installed and equipped to ensure that only clean, uncontaminated air enters the compressor?
- \_\_\_\_\_ Are air filters installed on the compressor intake?
- \_\_\_\_\_ Are compressors operated and lubricated in accordance with the manufacturer's recommendations?
- \_\_\_\_\_ Are safety devices on compressed air systems checked frequently?
- \_\_\_\_\_ Before any repair work is done on the pressure system of a compressor, is the pressure bled off and the system locked out?
- \_\_\_\_\_ Are signs posted to warn of the automatic starting feature of the compressors?
- \_\_\_\_\_ Is the belt drive system totally enclosed to provide protection for the front, back, top and sides?
- \_\_\_\_\_ Is it distinctly prohibited to direct compressed air towards a person?
- \_\_\_\_\_ Are employees prohibited from using highly compressed air for cleaning purposes?
- \_\_\_\_\_ If compressed air is used for cleaning off clothing, is the pressure reduced to less than 10 psi?
- \_\_\_\_\_ When using compressed air for cleaning, do employees use personal protective equipment?
- \_\_\_\_\_ Are safety chains or other suitable locking devices used at couplings of high pressure hose lines where a connection failure would create a hazard?
- \_\_\_\_\_ Before compressed air is used to empty containers of liquid, is the safe working pressure of the container checked?
- \_\_\_\_\_ When compressed air is used with abrasive blast cleaning equipment, is the operating valve a type that must be held open manually?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ When compressed air is used to inflate auto tires, is a clip-on chuck and an inline regulator preset to 40 psi required?

\_\_\_\_\_ Is it prohibited to use compressed air to clean up or move combustible dust if such action could cause the dust to be suspended in the air and cause a fire or explosion hazard?

### **Compressed Air Receivers**

\_\_\_\_\_ Is every receiver equipped with a pressure gauge and with one or more automatic, spring-loaded safety valves?

\_\_\_\_\_ Is the total relieving capacity of the safety valve capable of preventing pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent?

\_\_\_\_\_ Is every air receiver provided with a drain pipe and valve at the lowest point for the removal of accumulated oil and water?

\_\_\_\_\_ Are compressed air receivers periodically drained of moisture and air?

\_\_\_\_\_ Are all safety valves tested frequently and at regular intervals to determine whether they are in good operating condition?

\_\_\_\_\_ Is there a current operating permit issued by the Division of Occupational Safety and Health?

\_\_\_\_\_ Is the inlet of air receivers and piping systems kept free of accumulated oil and carbonaceous materials?

### **Compressed Gas Cylinders**

\_\_\_\_\_ Are cylinders with a water weight capacity over 30 pounds equipped with means for connecting a valve protector device, or with a collar or recess to protect the valve?

\_\_\_\_\_ Are cylinders legibly marked to clearly identify the gas contained?

\_\_\_\_\_ Are compressed gas cylinders stored in areas which are protected from external heat sources such as flame impingement, intense radiant heat, electric arcs or high temperature lines?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Are cylinders located or stored in areas where they will not be damaged by passing or falling objects, or subject to tampering by unauthorized persons?

\_\_\_\_\_ Are cylinders stored or transported in a manner to prevent them creating a hazard by tipping, falling or rolling?

\_\_\_\_\_ Are cylinders containing liquefied fuel as stored or transported in a position so that the safety relief device is always in direct contact with the vapor space in the cylinder?

\_\_\_\_\_ Are valve protectors always placed on cylinders when the cylinders are not in use or connected for use?

\_\_\_\_\_ Are all valves closed off before a cylinder is moved, when the cylinder is empty, and at the completion of each job?

\_\_\_\_\_ Are low pressure fuel-gas cylinders checked periodically for corrosion general distortion, cracks, or any other defect that might indicate a weakness or render them unfit for service?

\_\_\_\_\_ Does the periodic check of low pressure fuel-gas cylinders include a close inspection of the cylinder's bottom?

#### **Hoist & Auxiliary Equipment**

\_\_\_\_\_ Is each overhead electric hoist equipped with a limit device to stop the hook travel at its highest and lowest points of safe travel?

\_\_\_\_\_ Will each hoist automatically stop and hold any load up to 125 percent of its rated load, if its actuating force is removed?

\_\_\_\_\_ Is the rated load of each hoist legibly marked and visible to the operator?

\_\_\_\_\_ Are stops provided at the safe limits of travel for trolley hoists?

\_\_\_\_\_ Are the controls of hoists plainly marked to indicate direction of travel or motion?

\_\_\_\_\_ Is each cage-controlled hoist equipped with an effective warning device?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are close fitting guards or over suitable devices installed on hoists to assure hoist ropes will be maintained in the sheave groves?
- \_\_\_\_\_ Are all hoist chains or ropes of sufficient length to handle the full range of movement for the application while maintaining two full wraps on the drum at all times?
- \_\_\_\_\_ Are nip points or contact points between hoist ropes and sheaves which are permanently located within 7 feet of the floor, ground or working platform, guarded?
- \_\_\_\_\_ Is it prohibited to use chains or rope slings that are kinked or twisted?
- \_\_\_\_\_ Is it prohibited to use the hoist. rope or chain wrapped around the load as a substitute for a sling?
- \_\_\_\_\_ Is the operator instructed to avoid carrying loads over people?
- \_\_\_\_\_ Are only employees who have been trained in the proper use of hoists allowed to operate them?

#### **Powered Industrial Trucks-Forklifts**

- \_\_\_\_\_ Are only trained personnel allowed to operate powered industrial trucks?
- \_\_\_\_\_ Is substantial overhead protective equipment provided on high lift rider equipment?
- \_\_\_\_\_ Are the required lift truck operating rules posted and enforced?
- \_\_\_\_\_ Is directional lighting provided on each industrial truck that operates in an area with less than 2 foot candles per square foot of general lighting?
- \_\_\_\_\_ Does each industrial truck have a warning horn, whistle, gong or other device which can be clearly heard above the normal noise in the area where operated?
- \_\_\_\_\_ Are the brakes on each industrial truck capable of bringing the vehicle to a complete and safe stop when fully loaded?
- \_\_\_\_\_ Will the industrial truck's parking brake effectively prevent the vehicle from moving when unattended?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Are industrial trucks operating in areas where flammable gases or vapors, combustible dust or ignitable fibers may be present in the atmosphere, approved for such locations?

\_\_\_\_\_ Are motorized hand and hand/rider trucks so designed that the brakes are applied and power to the drive motor shuts off when the operator releases his/her grip on the device that controls the travel?

\_\_\_\_\_ Are industrial trucks with internal combustion engines, operated in buildings or enclosed areas, carefully checked to ensure such operations do not cause harmful concentration of dangerous gases or fumes?

#### **Spraying Operations**

\_\_\_\_\_ Is adequate ventilation assured before spray operations are started?

\_\_\_\_\_ Is mechanical ventilation provided when spraying operation is done in enclosed areas?

\_\_\_\_\_ When mechanical ventilation is provided during spraying operations, is it arranged so that it will not circulate the contaminated air?

\_\_\_\_\_ Is the spray area free of hot surfaces?

\_\_\_\_\_ Is the spray area at least 20 feet from flames, sparks, operating electrical motors and other ignition sources?

\_\_\_\_\_ Are portable lamps used to illuminate spray areas suitable for use in a hazardous location?

\_\_\_\_\_ Is approved respiratory equipment provided and used when appropriate during spraying operations?

\_\_\_\_\_ Do solvents used for cleaning have a flash point of 100°F or more?

\_\_\_\_\_ Are fire control sprinkler heads kept clean?

\_\_\_\_\_ Are "NO SMOKING" signs posted in spray areas, paint-rooms, paint-booths and paint storage areas?

\_\_\_\_\_ Is the spray area kept clean of combustible residue?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are spray booths constructed of metal, masonry or other substantial noncombustible material?
- \_\_\_\_\_ Are spray booth floors and baffles noncombustible and easily cleaned?
- \_\_\_\_\_ Is the electric drying apparatus properly grounded?
- \_\_\_\_\_ Are lighting fixtures for spray booths located outside of the booth and the interior lighted through sealed clear panels?
- \_\_\_\_\_ Are the electric motors for exhaust fans placed outside booths or ducts?
- \_\_\_\_\_ Are belts and pulleys inside the booth fully enclosed?
- \_\_\_\_\_ Do ducts have access doors to allow cleaning?
- \_\_\_\_\_ Do all drying spaces have adequate ventilation?

#### **Entering Confined Spaces**

- \_\_\_\_\_ Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics, before entry?
- \_\_\_\_\_ Before entry, are all lines to a confined space, containing inert toxic, flammable or corrosive materials, valves off and blanked or disconnected and separated?
- \_\_\_\_\_ Is it required that all impellers, agitators, or other moving equipment inside confined spaces be rocked-out if they present a hazard?
- \_\_\_\_\_ Is either natural or mechanical ventilation provided prior to confined space entry?
- \_\_\_\_\_ Before entry, are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substances and explosive concentrations in the confined space?
- \_\_\_\_\_ Is adequate illumination provided for the work to be performed in the confined space?
- \_\_\_\_\_ Is the atmosphere inside the confined space frequently tested or continuously monitored during conduct of work?

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### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Is there an assigned safety standby employee outside of the confined space, whose sole responsibility is to watch the working progress, sound an alarm if necessary, and help render assistance?
- \_\_\_\_\_ Is the standby employee, or other employees, prohibited from entering the confined space without lifelines and respiratory equipment, if there is any question as to the cause of any emergency?
- \_\_\_\_\_ In addition to the standby employee, is there at least one other trained rescuer in the vicinity?
- \_\_\_\_\_ Are all rescuers appropriately trained and using approved, recently inspected equipment?
- \_\_\_\_\_ Does all rescue equipment allow for lifting employees vertically from a top opening?
- \_\_\_\_\_ Are there trained personnel in First Aid and CPR immediately available?
- \_\_\_\_\_ Is there an effective communication system in place whenever respiratory equipment is used and the employee in the confined space is out of sight of the standby person?
- \_\_\_\_\_ Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?
- \_\_\_\_\_ Is all portable electrical equipment used inside confined spaces either grounded and insulated, or equipped with ground fault protection?
- \_\_\_\_\_ Before gas welding or burning is started in a confined space, are hoses checked for leaks, compressed gas bottles forbidden inside the confined space, torches lighted only outside the confined area, and the confined area tested for an explosive atmosphere each time before a lighted torch is to be taken into the confined space?
- \_\_\_\_\_ If employees will be using oxygen-consuming equipment-such as salamanders, torches, furnaces-in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Whenever combustion-type equipment is used in a confined space, are provisions made to ensure that the exhaust gases are vented outside of the enclosure?
- \_\_\_\_\_ Is each confined space checked for decaying vegetation or animal matter which may produce methane?
- \_\_\_\_\_ Is the confined space checked for possible industrial waste which could contain toxic properties?
- \_\_\_\_\_ If the confined space is below the ground and near areas where motor vehicles are operating is it possible for vehicle exhaust or carbon monoxide to enter the space

### **Environmental Controls**

- \_\_\_\_\_ Are all work areas properly illuminated?
- \_\_\_\_\_ Are employees instructed in proper first aid and other emergency procedures?
- \_\_\_\_\_ Are hazardous substances identified which may cause harm by inhalation, ingestion, skin absorption or contact?
- \_\_\_\_\_ Are employees aware of the hazards involved with the various chemicals they may be exposed to in their work environment, such as ammonia, chlorine, epoxies, caustics?
- \_\_\_\_\_ Is employee exposure to chemicals in the workplace kept within acceptable levels?
- \_\_\_\_\_ Can a less harmful method or product be used?
- \_\_\_\_\_ Is the work area's ventilation system appropriate for work being performed?
- \_\_\_\_\_ Are spray painting operations done in spray rooms or booths equipped with an appropriate exhaust system?
- \_\_\_\_\_ Is employee exposure to welding fumes controlled by ventilation, use of respirators, exposure time, or other means?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are welders and other workers nearby provided with flash shields during welding operations?
- \_\_\_\_\_ If forklifts and other vehicles are used in buildings or other enclosed areas, are carbon monoxide levels kept below maximum acceptable concentration?
- \_\_\_\_\_ Has there been a determination that noise levels in the facilities are within acceptable levels?
- \_\_\_\_\_ Are steps being taken to use engineering controls to reduce excessive noise levels?
- \_\_\_\_\_ Are proper precautions being taken when handling asbestos and other fibrous materials?
- \_\_\_\_\_ Are caution labels and signs used to warn of asbestos?
- \_\_\_\_\_ Are wet methods used, when practicable, to prevent emission of airborne asbestos fibers, silica dust and similar hazardous materials?
- \_\_\_\_\_ Is vacuuming with appropriate equipment used whenever possible, rather than blowing or sweeping dust?
- \_\_\_\_\_ Are grinders, saws and other machines that produce dusts vented to an industrial collector or central exhaust system?
- \_\_\_\_\_ Are all local exhaust ventilation systems designed and operating properly at the airflow and volume necessary for the application Are the ducts free of obstructions or the belts slipping?
- \_\_\_\_\_ Is personal protective equipment provided, used and maintained wherever required?
- \_\_\_\_\_ Are there written standard operating procedures for the selection and use of respirators where needed?
- \_\_\_\_\_ Are restrooms and washrooms kept clean and sanitary?
- \_\_\_\_\_ Is all water provided for drinking, washing and cooking potable?
- \_\_\_\_\_ Are all outlets for water not suitable for drinking clearly identified?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are employees' physical capacities assessed before being assigned to jobs requiring heavy work?
- \_\_\_\_\_ Are employees instructed in the proper manner of lifting heavy objects?
- \_\_\_\_\_ Where heat is a problem, have all fixed work areas been provided with spot cooling or air conditioning?
- \_\_\_\_\_ Are employees screened before assignment to areas of high heat to determine if their health condition might make them more susceptible to having an adverse reaction?
- \_\_\_\_\_ Are employees working on streets and roadways, where they are exposed to the hazards of traffic, required to wear a bright colored (traffic orange) warning vest?
- \_\_\_\_\_ Are exhaust stacks and air intakes located so that contaminated air will not be re-circulated within a building or other enclosed area?
- \_\_\_\_\_ Is equipment producing ultra-violet radiation properly shielded?

#### **Flammable & Combustible Materials**

- \_\_\_\_\_ Are combustible scrap, debris and waste materials (i.e. oily rags) stored in covered metal receptacles and removed from the worksite promptly?
- \_\_\_\_\_ Is proper storage practiced to minimize risks of fire and spontaneous combustion?
- \_\_\_\_\_ Are approved containers and tanks used for the storage and handling of flammable and combustible liquids?
- \_\_\_\_\_ Are all connections on drums and combustible liquid piping, vapor and liquid tight?
- \_\_\_\_\_ Are all flammable liquids kept in closed containers when not in use (e.g. parts cleaning tanks, pans)?
- \_\_\_\_\_ Are bulk drums of flammable liquids grounded and bonded to containers during dispensing?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Do storage rooms for flammable and combustible liquids have explosion-proof lights?

\_\_\_\_\_ Do storage rooms for flammable and combustible liquids have mechanical or gravity ventilation?

\_\_\_\_\_ Is liquefied petroleum gas stored, handled and used in accordance with safe practices and standards?

\_\_\_\_\_ Are liquefied petroleum storage tanks guarded to prevent damage from vehicles?

\_\_\_\_\_ Are all solvent wastes and flammable liquids kept in fire-resistant covered containers until they are removed from the worksite?

\_\_\_\_\_ Is vacuuming used whenever possible, rather than blowing or sweeping combustible dust?

\_\_\_\_\_ Are fire separators placed between containers of combustibles or flammables, when stacked one upon another, to assure their support and stability?

\_\_\_\_\_ Are fuel gas cylinders and oxygen cylinders separated by distance, fire resistant barriers or other means while in storage?

\_\_\_\_\_ Are fire extinguishers selected and provided for the types of materials, in areas where they are to be used?

**Class A:** Ordinary combustible material fires.

**Class B:** Flammable liquid, gas or grease fires.

**Class C:** Energized-electric equipment fires.

\_\_\_\_\_ If a Halon 1301 fire extinguisher is used, can employees evacuate within the specified time for that extinguisher?

\_\_\_\_\_ Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials?

\_\_\_\_\_ Is the transfer/withdrawal of flammable or combustible liquids performed by trained personnel?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are fire extinguishers mounted so that employees do not have to travel more than 75 feet for a class "A " fire or 50 feet for a class "B" fire?
- \_\_\_\_\_ Are employees trained in the use of fire extinguishers?
- \_\_\_\_\_ Are extinguishers free from obstructions or blockage?
- \_\_\_\_\_ Are all extinguishers serviced, maintained and tagged at intervals not to exceed one year?
- \_\_\_\_\_ Are all extinguishers fully charged and in their designated places?
- \_\_\_\_\_ Is a record maintained of required monthly checks of extinguishers?
- \_\_\_\_\_ Where sprinkler systems are permanently installed, are the nozzle heads directed or arranged so that water will not be sprayed into operating electrical switch boards and equipment?
- \_\_\_\_\_ Are "NO SMOKING" signs posted where appropriate in areas where flammable or combustible materials are used or stored?
- \_\_\_\_\_ Are " NO SMOKING" signs posted on liquefied petroleum gas tanks?
- \_\_\_\_\_ Are "NO SMOKING" rules enforced in areas involving storage and use of flammable materials?
- \_\_\_\_\_ Are safety cans used for dispensing flammable or combustible liquids at a point of use?
- \_\_\_\_\_ Are all spills of flammable or combustible liquids cleaned up promptly?
- \_\_\_\_\_ Are storage tanks adequately vented to prevent development of excessive vacuum or pressure as a result of filling, emptying, or atmosphere temperature changes?
- \_\_\_\_\_ Are storage tanks equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure?
- \_\_\_\_\_ Are spare portable or butane tanks which are used by industrial trucks stored in accord with regulations?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Hazardous Chemical Exposures**

- \_\_\_\_\_ Are employees trained in the safe handling practices of hazardous chemicals such as acids, caustics, fuels, etc.?
- \_\_\_\_\_ Are employees aware of the potential hazards involving various chemicals stored or used in the workplace - such as acids, bases, caustics, epoxies, phenols?
- \_\_\_\_\_ Is employee exposure to chemicals kept within acceptable levels?
- \_\_\_\_\_ Are eye wash fountains and safety showers provided in areas where corrosive chemicals are handled?
- \_\_\_\_\_ Are all containers such as vats and storage tanks labeled as to their contents - e.g. "CAUSTICS"?
- \_\_\_\_\_ Are all employees required to use personal protective clothing and equipment when handling chemicals (i.e. gloves, eye protection, respirators)?
- \_\_\_\_\_ Are flammable or toxic chemicals kept in closed containers when not in use?
- \_\_\_\_\_ Are chemical piping systems clearly marked as to their content?
- \_\_\_\_\_ Where corrosive liquids are frequently handled in open containers or drawn from storage vessels or pipe lines, is adequate means readily available for neutralizing or disposing of spills or overflows properly and safely?
- \_\_\_\_\_ Have standard operating procedures been established and are they being followed when cleaning up chemical spills?
- \_\_\_\_\_ Where needed for emergency use, are respirators stored in a convenient, clean and sanitary location?
- \_\_\_\_\_ Are respirators intended for emergency use adequate for the various uses for which they may be needed?
- \_\_\_\_\_ Are employees prohibited from eating in areas where hazardous chemicals are present?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Is personal protective equipment provided, use and maintained whenever necessary?
- \_\_\_\_\_ Are there written standard operating procedures for the selection and use of respirators where needed?
- \_\_\_\_\_ If you have a respirator protection program, are your employees instructed on the correct usage and limitations of the respirators?
- \_\_\_\_\_ Are the respirators NIOSH approved for this particular application?
- \_\_\_\_\_ Are they regularly inspected and cleaned, sanitized and maintained?
- \_\_\_\_\_ If hazardous substances are used in your processes, do you have a medical or biological monitoring system in operation?
- \_\_\_\_\_ Are you familiar with the Threshold Limit Values or Permissible Exposure Limits of airborne contaminants and physical agents used in your workplace?
- \_\_\_\_\_ Have control procedures been instituted for hazardous materials, where appropriate, such as respirators, ventilation systems, handling practices, etc.?
- \_\_\_\_\_ Whenever possible, are hazardous substances handled in properly designed and exhausted booths or similar locations?
- \_\_\_\_\_ Do you use general dilution or local exhaust ventilation systems to control dusts, vapors, gases, fumes, smoke, solvents or mists which may be generated in your workplace?
- \_\_\_\_\_ Is ventilation equipment provided for removal of contaminant from such operations as production grinding, buffing, spray painting, and/or vapor degreasing, and is it operating properly?
- \_\_\_\_\_ Do employees complain about dizziness, headaches, nausea, irritation or other factors of discomfort when they use solvents or other chemicals?
- \_\_\_\_\_ Is there a dermatitis problem - do employees complain about skin dryness, irritation, or sensitization?
- \_\_\_\_\_ Have you considered the use of an industrial hygienist or environmental health specialist to evaluate your operation?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ If internal combustion engines are used, is carbon monoxide kept within acceptable levels?
- \_\_\_\_\_ Is vacuuming used, rather than blowing or sweeping dusts, whenever possible for clean-up?
- \_\_\_\_\_ Are materials which give off toxic asphyxiant, suffocating or anesthetic fumes, stored in remote or isolated locations when not in use?

### **Hazardous Substances Communication**

- \_\_\_\_\_ Is there a list of hazardous substances used in your workplace?
- \_\_\_\_\_ Is there a written hazard communication Program dealing with Material Safety Data Sheets (MSDS) , labeling and employee training?
- \_\_\_\_\_ Is there someone assigned and responsible for MSDSs, container labeling, employee training?
- \_\_\_\_\_ Is each container for a hazardous substance: (i.e. vats, bottles, storage tanks) labeled with product identity and a hazard warning (communication of the specific health hazards and physical hazards)?
- \_\_\_\_\_ Is there a Material Safety Data Sheet readily available for each hazardous substance used?
- \_\_\_\_\_ How will you inform other employers whose employees share the same work area where the hazardous substances are used?
- \_\_\_\_\_ Is there an employee training program for hazardous substances?

### **Does this Hazardous Communication program include:**

- \_\_\_\_\_ An explanation of what an MSDS is and how to use and obtain one?
- \_\_\_\_\_ MSDS contents for each hazardous substance or class of substances?
- \_\_\_\_\_ Explanation of "Right to Know"?



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area?
- \_\_\_\_\_ The physical and health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used?
- \_\_\_\_\_ Details of the hazard communications program, including how to use the labeling system and MSDSs?
- \_\_\_\_\_ How employees will be informed of hazards of non-routine tasks, and hazards of unlabeled pipes?

### **Electrical**

- \_\_\_\_\_ Are your workplace electricians familiar with the State & Federal OSHA Electrical Safety Orders and State Electrical Codes?
- \_\_\_\_\_ Do you specify compliance with the State & Federal OSHA Electrical Safety Orders and State Electrical Codes for all contract electrical work?
- \_\_\_\_\_ Are all employees required to report as soon as practicable any obvious hazard to life or property observed in connection with electrical equipment or lines?
- \_\_\_\_\_ Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
- \_\_\_\_\_ When electrical equipment or lines are to be serviced, maintained or adjusted, are necessary switches opened, locked out and tagged whenever possible?
- \_\_\_\_\_ Are portable electrical tools and equipment grounded or of the double insulated type?
- \_\_\_\_\_ Are electrical appliances such as vacuum cleaners, polishers, vending machines grounded?
- \_\_\_\_\_ Do extension cords being used have a grounding conductor?
- \_\_\_\_\_ Are multiple plug adaptors prohibited?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are ground-fault circuit interrupters installed on each temporary 15 or 20 ampere, 120 volt AC circuit at locations where construction, demolition, modifications, alterations or excavations are being performed?
- \_\_\_\_\_ Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
- \_\_\_\_\_ Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
- \_\_\_\_\_ Are flexible cords and cables free of splices or taps?
- \_\_\_\_\_ Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, equipment and is the cord jacket securely held in place?
- \_\_\_\_\_ Are all cord, cable and raceway connections intact and secure?
- \_\_\_\_\_ In wet or damp locations, are electrical tools and equipment appropriate for the use, or location, or otherwise protected?
- \_\_\_\_\_ Is the location of electrical power lines and cables (overhead, underground, under floor, other side of walls) determined before digging, drilling or similar work is begun?
- \_\_\_\_\_ Are metal measuring tapes, ropes, hand lines or similar devices with metallic thread woven into the fabric prohibited where they could come in contact with energized parts of equipment or circuit conductors?
- \_\_\_\_\_ Is the use of metal ladders prohibited in areas where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or circuit conductors?
- \_\_\_\_\_ Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
- \_\_\_\_\_ Are disconnecting means always opened before fuses are replaced?
- \_\_\_\_\_ Do all interior wiring systems include provisions for grounding metal parts or electrical raceways, equipment and enclosures?

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### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are all electrical raceways and enclosures securely fastened in place?
- \_\_\_\_\_ Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
- \_\_\_\_\_ Is sufficient access and working space provided and maintained about all electrical equipment to permit ready and safe operations and maintenance?
- \_\_\_\_\_ Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs or plates?
- \_\_\_\_\_ Are electrical enclosures such as switches, receptacles, junction boxes provided with tight-fitting covers or plates?
- \_\_\_\_\_ Are disconnecting switches for electrical motors in excess of two horsepower capable of opening the circuit when the motor is in a stalled condition without exploding (Switches must be horsepower rated equal to or in excess of the motor hp rating.)?
- \_\_\_\_\_ Is low voltage protection provided in the control device of motors driving machines or equipment which could cause probable injury from inadvertent starting?
- \_\_\_\_\_ Is each motor disconnecting switch or circuit breaker located within sight of the motor control device?
- \_\_\_\_\_ Is each motor located within sight of its controller or the controller disconnecting means capable of being locked in the open position, or is separate disconnecting means installed in the circuit within sight of the motor?
- \_\_\_\_\_ Is the controller for each motor in excess of two horsepower rated in horsepower equal to or in excess of the rating of the motor it serves?
- \_\_\_\_\_ Are employees who regularly work on or around energized electrical equipment or lines instructed in cardiopulmonary resuscitation (CPR) methods?
- \_\_\_\_\_ Are employees prohibited from working alone on energized lines or equipment over 600 volts?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Noise**

\_\_\_\_\_ Are there areas in the workplace where continuous noise levels exceed 85 dBA (To determine maximum allowable levels for intermittent or impact noise, please refer to your state or federal Code of Regulations)?

\_\_\_\_\_ Are noise levels being measured using a sound level meter or an octave band analyzer, and records being kept?

\_\_\_\_\_ Have you tried isolating noisy machinery from the rest of your operation?

\_\_\_\_\_ Have engineering controls been used to reduce excessive noise levels?

\_\_\_\_\_ Where engineering controls are determined not feasible, are administrative controls (i.e. worker rotation) being used to minimize individual employee exposure to noise?

\_\_\_\_\_ Is there an ongoing preventive health program to educate employees in safe levels of noise and exposure, effects of noise on their health, and use of personal protection?

\_\_\_\_\_ Is the training repeated annually for employees exposed to continuous noise above 85 dBA?

\_\_\_\_\_ Have work area where noise levels make voice communication between employees difficult been identified and posted?

\_\_\_\_\_ Is approved hearing protective equipment (noise attenuating devices) available to every employee working in areas where continuous noise levels exceed 85 dBA ?

\_\_\_\_\_ If you use ear protectors, are employees properly fitted and instructed in their use and care?

\_\_\_\_\_ Are employees exposed to continuous noise above 85 dBA given periodic audiometric testing to ensure that you have an effective hearing protection system?

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## **WORKPLACE INSPECTION CHECKLIST**

### **Fueling**

- \_\_\_\_\_ Is it prohibited to fuel an internal combustion engine with a flammable liquid while the engine is running?
- \_\_\_\_\_ Are fueling operations done in such a manner that likelihood of spillage will be minimal?
- \_\_\_\_\_ When spillage occurs during fueling operations, is the spilled fuel cleaned up completely, evaporated, or other measures taken to control vapors before restarting the engine?
- \_\_\_\_\_ Are fuel tank caps replaced and secured before starting the engine?
- \_\_\_\_\_ In fueling operations is there always metal contact between the container and the fuel tank?
- \_\_\_\_\_ Are fueling hoses of a type designed to handle the specific type of fuel?
- \_\_\_\_\_ Is it prohibited to handle or transfer gasoline in open containers?
- \_\_\_\_\_ Are open lights, open flames, or sparking or arcing equipment prohibited near fueling or transfer of fuel operations?
- \_\_\_\_\_ Is smoking prohibited in the vicinity of fueling operations?
- \_\_\_\_\_ Are fueling operations prohibited in building or other enclosed areas that are not specifically ventilated for this purpose?
- \_\_\_\_\_ Where fueling or transfer of fuel is done through a gravity flow system, are the nozzles of the self-closing type?

### **Identification of Piping Systems**

- \_\_\_\_\_ When non-potable water is piped through a facility, are outlets or taps posted to alert employees it is unsafe and not to be used for drinking, washing or personal use?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ When hazardous substances are transported through aboveground piping, is each pipeline identified at points where confusion could introduce hazards to employees?
- \_\_\_\_\_ When pipelines are identified by color paintings, are all visible parts of the line so identified?
- \_\_\_\_\_ When pipelines are identified by color painted bands or tapes, are the bands or tapes located at reasonable intervals, and at each outlet, valve or connection?
- \_\_\_\_\_ When pipelines are identified by color, is the color code posted at all locations where confusion could introduce hazards to employees?
- \_\_\_\_\_ When the contents of pipelines are identified by name or name abbreviation, is the information readily visible on the pipe near each valve or outlet?
- \_\_\_\_\_ When pipelines carrying hazardous substances are identified by tags, are the tags constructed of durable materials, the message carried clearly and permanently distinguishable, and tags installed at each valve or outlet?
- \_\_\_\_\_ When pipelines are heated by electricity, steam or other external source, are suitable warning signs or tags placed at unions, valves, or other serviceable parts of the system?

### **Material Handling**

- \_\_\_\_\_ Is there safe clearance for equipment through aisles and doorways?
- \_\_\_\_\_ Are aisle ways designated, permanently marked, and kept clear to allow unhindered passage?
- \_\_\_\_\_ Are motorized vehicles and mechanized equipment inspected daily or prior to use?
- \_\_\_\_\_ Are vehicles shut off and brakes set prior to loading or unloading?
- \_\_\_\_\_ Are containers of combustibles or flammables, when stacked or being moved, always separated by a material sufficient to provide stability?
- \_\_\_\_\_ Are dock boards (bridge plates) used when loading or unloading operations are taking place between vehicles and docks?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Are trucks and trailers secured from movement during loading and unloading operations?
- \_\_\_\_\_ Are dock plates and loading ramps constructed and maintained with sufficient strength to support imposed loading?
- \_\_\_\_\_ Are hand trucks maintained in safe operating condition?
- \_\_\_\_\_ Are chutes equipped with sideboards of sufficient height to prevent the materials being handled from falling off?
- \_\_\_\_\_ Are chutes and gravity roller sections firmly placed or secured to prevent displacement?
- \_\_\_\_\_ At the delivery end of rollers or chutes, are provisions made to brake the movement of the handled materials?
- \_\_\_\_\_ Are pallets usually inspected before being loaded or moved?
- \_\_\_\_\_ Are hooks with safety latches or other arrangements used when hoisting materials, so that slings or load attachments won't accidentally slip off the hoist hooks?
- \_\_\_\_\_ Are securing chains, ropes, chokers or slings adequate for the job to be performed?
- \_\_\_\_\_ When hoisting material on equipment, are provisions made to assure no one will be passing under the suspended loads?
- \_\_\_\_\_ Are Material Safety Data Sheets available to employees handling hazardous substances?

#### **Transporting Employees and Materials**

- \_\_\_\_\_ Do employees who operate vehicles on public thoroughfares have operator's licenses?
- \_\_\_\_\_ When seven or more employees are regularly transported in a van, bus or truck, is the operator's license appropriate for the class of vehicle being driven?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is each van, bus or truck used regularly to transport employees equipped with an adequate number of seats?

\_\_\_\_\_ When employees are transported by truck, are provisions provided to prevent their falling from the vehicle?

\_\_\_\_\_ Are vehicles used to transport employees equipped with lamps, brakes, horns, mirrors, windshields and turn signals in good repair?

\_\_\_\_\_ Are transport vehicles provided with handrails, steps, stirrups or similar devices, so placed and arranged that employees can safely mount or dismount?

\_\_\_\_\_ Are employee transport vehicles equipped at all times with at least two reflective type flares?

\_\_\_\_\_ Is a fully-charged fire extinguisher, in good condition, with at least 4 B:C rating maintained in each employee transport vehicle?

\_\_\_\_\_ When cutting tools with sharp edges are carried in passenger compartments of employee transport vehicles, are they placed in closed boxes or containers which are secured in place?

\_\_\_\_\_ Are employees prohibited from riding on top of any load which can shift, topple, or otherwise become unstable?

#### **Control of Harmful Substances by Ventilation**

\_\_\_\_\_ Is the volume and velocity of air in each exhaust system sufficient to gather the dusts, fumes, mists, vapors or gases to be controlled, and to convey them to a suitable point of disposal?

\_\_\_\_\_ Are exhaust inlets, ducts and plenums designed, constructed, and supported to prevent collapse or failure of any part of the system?

\_\_\_\_\_ Are clean-out ports or doors provided at intervals not to exceed 12 feet in all horizontal runs of exhaust ducts?

\_\_\_\_\_ Where two or more different types of operations are being controlled through the same exhaust system, will the combination of substances being controlled constitute a fire, explosion or chemical reaction hazard in the duct?



# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Is adequate makeup air provided to areas where exhaust systems are operating?

\_\_\_\_\_ Is the intake for makeup air located so that only clean, fresh air, which is free of contaminants, will enter the work environment?

\_\_\_\_\_ Where two or more ventilation systems are serving a work area, is their operation such that one will not offset the functions of the other?

### **Sanitizing Equipment & Clothing**

\_\_\_\_\_ Is personal protective clothing or equipment that employees are required to wear or use, of a type capable of being easily cleaned and disinfected?

\_\_\_\_\_ Are employees prohibited from interchanging personal protective clothing or equipment, unless it has been properly cleaned?

\_\_\_\_\_ Are machines and equipment which process, handle or apply materials that could be injurious to employees, cleaned and/or decontaminated before being overhauled or placed in storage?

\_\_\_\_\_ Are employees prohibited from smoking or eating in any area where contaminants are present that could be injurious if ingested?

\_\_\_\_\_ When employees are required to change from street clothing into protective clothing, is a clean change room with separate storage facility for street and protective clothing provided?

\_\_\_\_\_ Are employees required to shower and wash their hair as soon as possible after known contact has occurred with a carcinogen?

\_\_\_\_\_ When equipment, materials or other items are taken into or removed from a carcinogen-regulated area, is it done in a manner that will not contaminate non-regulated areas or the external environment ?

### **Tire Inflation**

\_\_\_\_\_ Where tires are mounted and/or inflated on drop center wheels, is a safe practice procedure posted and enforced?

\_\_\_\_\_ Where tires are mounted and/or inflated on wheels with split rims and/or retainer rings, is a safe practice procedure posted and enforced?

## **HEALTH & SAFETY PROCEDURES MANUAL**

### **WORKPLACE INSPECTION CHECKLIST**

- \_\_\_\_\_ Does each tire inflation hose have a clip-on chuck with at least 24 inches of hose between the chuck and an in-line hand valve and gauge?
- \_\_\_\_\_ Does the tire inflation control valve automatically shut off the air flow when the valve is released?
- \_\_\_\_\_ Is a tire restraining device such as cage, rack or other effective means used while inflating tires mounted on split rims, or rims using retainer rings?
- \_\_\_\_\_ Are employees strictly forbidden from taking a position directly over or in front of a tire while it's being inflated?

#### **Emergency Action Plan**

- \_\_\_\_\_ Are you required to have an emergency action plan?
- \_\_\_\_\_ Does the emergency action plan comply with requirements of State & Local Government?
- \_\_\_\_\_ Have emergency escape procedures and routes been developed and communicated to all employees?
- \_\_\_\_\_ Do employees who remain to operate critical plant operations before they evacuate, know the proper procedures?
- \_\_\_\_\_ Is the employee alarm system that provides a warning for emergency action recognizable and perceptible above ambient conditions?
- \_\_\_\_\_ Are alarm systems properly maintained and tested regularly?
- \_\_\_\_\_ Is the emergency action plan reviewed and revised periodically?

#### **Do employees know their responsibilities:**

- \_\_\_\_\_ For reporting emergencies?
- \_\_\_\_\_ During an emergency?
- \_\_\_\_\_ For conducting rescue and medical duties?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Infection Control**

- \_\_\_\_\_ Are employees potentially exposed to infectious agents in body fluids?
- \_\_\_\_\_ Have occasions of potential occupational exposure been identified and documented?
- \_\_\_\_\_ Has a training and information program been provided for employees exposed to or potentially exposed to blood and/or body fluids?
- \_\_\_\_\_ Have infection control procedures been instituted where appropriate, such as ventilation, universal precautions, workplace practices, personal protective equipment?
- \_\_\_\_\_ Are employees aware of specific workplace practices to follow when appropriate (Hand washing, handling sharp instruments, handling of laundry, disposal of contaminated materials, reusable equipment )?
- \_\_\_\_\_ Is personal protective equipment provided to employees, and in all appropriate locations?
- \_\_\_\_\_ Is the necessary equipment (i.e. mouthpieces, resuscitation bags, other ventilation devices) provided for administering mouth-to-mouth resuscitation on potentially infected patients?
- \_\_\_\_\_ Are facilities/equipment to comply with workplace practices available, such as hand-washing sinks, biohazard tags and labels, needle containers, detergents/ disinfectants to clean up spills?
- \_\_\_\_\_ Are all equipment and environmental and working surfaces cleaned and disinfected after contact with blood or potential IV infectious materials?
- \_\_\_\_\_ Is infectious waste placed in closable, leak proof containers, bags or puncture resistant holders with proper labels?
- \_\_\_\_\_ Has medical surveillance including HBV evaluation, antibody testing and vaccination been made available to potentially exposed employees?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

**How often is training done and does it cover:**

\_\_\_\_\_ Universal precautions

\_\_\_\_\_ Personal protective equipment

\_\_\_\_\_ Workplace practices which should include blood drawing, room cleaning, laundry handling, clean-up of blood spills?

\_\_\_\_\_ Needle stick exposure/management?

\_\_\_\_\_ Hepatitis B vaccination?

### **Ergonomics**

\_\_\_\_\_ Can the work be performed without eye strain or glare to the employees?

\_\_\_\_\_ Does the task require prolonged raising of the arms?

\_\_\_\_\_ Do the neck and shoulders have to be stooped to view the task?

\_\_\_\_\_ Are there pressure points on any parts of the body (wrists, forearms, back of thighs)?

\_\_\_\_\_ Can the work be done using the larger muscles of the body?

\_\_\_\_\_ Can the work be done without twisting or overly bending the lower back?

\_\_\_\_\_ Are there sufficient rest breaks, in addition to the regular rest breaks, to relieve stress from repetitive-motion tasks?

\_\_\_\_\_ Are tools, instruments and machinery shaped, positioned and handled so that tasks can be performed comfortably?

\_\_\_\_\_ Are all pieces of furniture adjusted, positioned and arranged to minimize strain on all parts of the body?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Ventilation for Indoor Air Quality**

- \_\_\_\_\_ Does your HVAC system provide at least the quantity of out-door air required by the State Building Standards Code, Title 14, Part 2 at the time the building was constructed?
- \_\_\_\_\_ Is the HVAC system inspected at least annually, and problems corrected?
- \_\_\_\_\_ Are inspection records retained for at least 5 years?

### **Crane Checklist**

- \_\_\_\_\_ Are the cranes visually inspected for defective components prior to the beginning of any work shift?
- \_\_\_\_\_ Are all electrically operated cranes effectively grounded?
- \_\_\_\_\_ Is a crane preventive maintenance program established?
- \_\_\_\_\_ Is the load chart clearly visible to the operator?
- \_\_\_\_\_ Are operating controls clearly identified?
- \_\_\_\_\_ Is a fire extinguisher provided at the operator's station?
- \_\_\_\_\_ Is the rated capacity visibly marked on each crane?
- \_\_\_\_\_ Is an audible warning device mounted on each crane?
- \_\_\_\_\_ Is sufficient illumination provided for the operator to perform the work safely?
- \_\_\_\_\_ Are cranes of such design, that the boom could fall over backward, equipped with boom stops?
- \_\_\_\_\_ Does each crane have a certificate indicating that required testing and examinations have been performed?
- \_\_\_\_\_ Are crane inspection and maintenance records maintained and available for inspection?

# **HEALTH & SAFETY PROCEDURES MANUAL**

## **WORKPLACE INSPECTION CHECKLIST**

### **Non-Mandatory Checklist Evaluation Injury & Illness Prevention Programs**

- \_\_\_\_\_ Does the written injury and illness prevention program contain the elements required by State & Federal agencies?
- \_\_\_\_\_ Is the person or persons with authority and responsibility for implementing the program identified?
- \_\_\_\_\_ Is there a system for ensuring that employees comply with safe and healthy work practices (i.e. employee incentives, training and retraining programs, and/or disciplinary measures)?
- \_\_\_\_\_ Is there a system that provides communication with affected employees on occupational safety and health matters (i.e. meetings, training programs, posting, written communications, a system of anonymous notification concerning hazards and/ or health and safety committees)?
- \_\_\_\_\_ Does the communication system include provisions designed to encourage employees to inform the employer of hazards at the worksite without fear of reprisal?
- \_\_\_\_\_ Is there a system for identifying and evaluating workplace hazards whenever new substances, processes, procedures, or equipment are introduced to the workplace and whenever the employer receives notification of a new or previously unrecognized hazard?
- \_\_\_\_\_ Were workplace hazards identified when the program was first established?
- \_\_\_\_\_ Are periodic inspections for safety and health hazards scheduled?
- \_\_\_\_\_ Are records kept of inspections made to identify unsafe conditions and work practices, if required?
- \_\_\_\_\_ Is there an accident and near-miss investigation procedure?
- \_\_\_\_\_ Are unsafe or unhealthy conditions and work practices corrected expeditiously, with the most hazardous exposures given correction priority?
- \_\_\_\_\_ Are employees protected from serious or imminent hazards until they are corrected?

## **HEALTH & SAFETY PROCEDURES MANUAL** **WORKPLACE INSPECTION CHECKLIST**

\_\_\_\_\_ Have employees received training in general safe and healthy work practices?

\_\_\_\_\_ Do employees know the safety and health hazards specific to their job assignments?

\_\_\_\_\_ Is training provided for all employees when the training program is first established?

\_\_\_\_\_ Is training provided to all new employees, and those given new job assignments?

\_\_\_\_\_ Are training needs of employees evaluated whenever new substances, processes procedures or equipment are introduced to the workplace and whenever the employer receives notification of a new or previously unrecognized hazard?

\_\_\_\_\_ Are supervisors knowledgeable of the safety and health hazards to which employees under their immediate direction and control may be exposed?

\_\_\_\_\_ Are records kept documenting safety and health training for each employee by name or other identifier, training dates, type(s) of training and training providers?

\_\_\_\_\_ Does the employer have a labor-management safety and health committee?

\_\_\_\_\_ Does the committee meet at least quarterly?

\_\_\_\_\_ Is a written record of safety committee meetings distributed to affected employees and maintained for Division review?

\_\_\_\_\_ Does the committee review results of the periodic, scheduled worksite inspections?

\_\_\_\_\_ Does the committee review accident and near-miss investigations and, where necessary, submit suggestions for prevention of future incidents?

\_\_\_\_\_ When determined necessary by the committee does it conduct its own inspections and investigations, to assist in remedial solutions?

\_\_\_\_\_ Does the committee verify abatement action taken by the employer as specified in Division citations upon request of the Division?

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – HAND PROTECTION**

In compliance with *29 CFR, Part 1910, Subpart I, Personal Protective Equipment, Job Safety Analyses* have been reviewed for job tasks performed by all commercial, distribution, production and water company personnel at The purpose was to determine the existence of hazards that may require wearing hand protection to protect individuals from various hazards.

Based on information provided in the Job Safety Analyses as well as a review of existing operations performed by Global Water Resources. personnel, it has been determined that numerous tasks conducted throughout any given workday place employees of Global Water Resources at risk of exposure to hazards that may cause occupational hand injuries. These hazards include:

- \_\_\_\_\_ Manual or mechanical cutting, chipping or grinding operations.
- \_\_\_\_\_ Crush/pinch-type injuries associated with various normal work duties.
- \_\_\_\_\_ Abrasions/lacerations.
- \_\_\_\_\_ Skin contact with chemicals or other hazardous substances capable of causing burns or other dermatitis situations.
- \_\_\_\_\_ Vibrations while operating hydraulic or pneumatic equipment.

Based on the above information, it has been determined that occupational hand protection must be worn in the following situations:

1. When performing work on any liquid chemical feed line or when handling any hazardous material,
2. Any and all work performed during construction, operation or maintenance activities where the potential for crush/pinch- type injuries, lacerations or abrasions exist,
3. When operating hydraulic or pneumatic equipment which generate excessive vibration,
4. When performing manual or mechanical cutting, chipping or grinding operations,
5. When performing any welding duties,
6. Any and all situations or areas identified by supervisory personnel as a hazard area.



## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – HAND PROTECTION**

The requirement to wear occupational hand protection applies to all Global Water Resources. personnel who may become an active participant in any of these activities.

It is the responsibility of each employee to inspect all safety equipment to ensure no defects exist. Hand protection should be inspected, cleaned and maintained at regular intervals. Should hand protection be damaged, the equipment is to be turned into the supervisor, and new equipment will be issued.

The management from each operating location, along with input from the Operational Risk Management Department and various vendors, have established a selection of safety equipment which satisfies the appropriate regulatory requirements. The assessment and selection process is ongoing and is updated periodically based on comments and suggestions from employees, changes in regulations and/or standards, and availability of new equipment. Sampling of new material, equipment and design will be performed to determine applicability to our operations.

Criteria has been established for the selection and utilization of all occupational hand protection utilized by Global Water Resources. personnel. No single glove style is capable of providing protection against all potential hand hazards experienced by Global Water Resources. employees; therefore, various gloves are made available to employees suitable for particular application to specific job tasks:

\_\_\_\_\_ Work gloves can be utilized to minimize the possibility of minor cuts/abrasions when performing routine maintenance operations, construction activities, etc.

\_\_\_\_\_ Leather/cowhide gloves are to be utilized when handling equipment or material where crush/pinch-type hazards occur. These gloves can also be utilized to minimize the probability of severe lacerations when conducting cutting / chipping operations.

\_\_\_\_\_ Neoprene and rubber gloves are available for use in sewer operations and other wet conditions.

\_\_\_\_\_ Shock absorbing gloves are to be utilized when operating any and all pneumatic or hydraulic equipment which cause excessive vibration.

\_\_\_\_\_ Welder gloves will be provided to those individuals performing these type of tasks.

\_\_\_\_\_ Neoprene and/or nitrile gloves will be provided to employees working around hazardous substances.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – HEAD PROTECTION**

In compliance with 29 CFR, Part 1910, OSHA General Industry Standards, Subpart I, Personal Protective Equipment, and 29 CFR, Part 1926, Construction Safety Standard, 1926.100 Head Protection, Job Safety Analyses have been reviewed for job tasks performed by all commercial, distribution and production employees of Global Water Resources. The purpose of this assessment was to determine the existence of hazards that may require wearing protective headwear.

Based on information provided in the Job Safety Analyses as well as information obtained from ANSI, Z89.1-1986, the *American National Standard for Personnel Protection-Protective Headwear for Industrial Workers*, it has been determined that numerous tasks conducted throughout any given workday place employees of Global Water Resources. at risk of exposure to hazards that may cause occupational head injuries. These hazards include:

- \_\_\_\_\_ Falling tools and/or equipment when in confined spaces and trenches.
- \_\_\_\_\_ Mechanical equipment operating around or at a work site.
- \_\_\_\_\_ Contact with energized equipment while performing work at production facilities or other locations where such hazards exist.
- \_\_\_\_\_ Work performed in close or tight areas where equipment and material is operated and/or stored.

Based on the above information, it has been determined that occupational head protection must be worn in the following situations:

1. Any and all work performed in confined spaces or trenches,
2. Any and all work performed at all construction sites( construction sites are typically defined but not limited to those involving the installation of pipe, valves and hydrants, construction or repair of buildings and structures, plant work involving the use of heavy equipment),
3. When performing work on or around electrical equipment and machinery at production facilities (this requirement applies to all company personnel who may be working on or near energized equipment, no matter where such work is performed),
4. Any area where work is being performed that may place the employee at risk of inadvertent contact with equipment, machinery or other objects that may cause injury to the head,

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – HEAD PROTECTION**

5. Any and all situations or areas identified by supervisory personnel as a hazard area.
6. As required by Federal Standards.

The requirement to wear occupational head protection applies to all Global Water Resources employees who perform any of the above described duties as well as to all supervisory employees or other employees (e.g. Accident Prevention Council members) who may be required to visit locations where hazards are present.

It is the responsibility of each employee to inspect all safety equipment to ensure no defects exist. Any cracks, breaks or leakage will require the issuance of new protective headwear. Shells of protective headwear are to be periodically cleaned. The painting of hard hats is strictly prohibited.

The management from each operating location, along with input from the (enter title), manager of Workplace Safety and various vendors, have established a selection of safety equipment which satisfies the appropriate regulatory requirements. The assessment and selection process is ongoing and is updated periodically based on comments and suggestions from employees, changes in regulations and/or standards, and availability of new equipment. Sampling of new material, equipment and design will be performed to determine applicability to our operations.

The following criteria has been established for all occupational headwear utilized by Global Water Resources personnel:

- \_\_\_\_\_ All headwear will satisfy ANSI Class B requirements. Hard hats stamped with multi-classifications will be acceptable provided Class B is included in the designation.
- \_\_\_\_\_ Any attached accessory (head band, strap, window liner, etc.) will be attached in accordance with manufacturers' recommendations,
- \_\_\_\_\_ All accessories will be mounted, utilizing openings provided by the manufacturer. No additional holes are to be made in the shell of a protective device.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT –FOOT PROTECTION**

In compliance with *29 CFR, Part 1910, Subpart I, Personal Protective Equipment*, Job Safety Analyses have been reviewed for job tasks performed by all commercial, distribution and production employees at Global Water Resources. The purpose of this assessment was to determine the existence of hazards that may require wearing protective footwear.

Based on information provided in the Job Safety Analyses, as well as information obtained from ANSI Z41-1991, the *American National Standard for Personnel Protection - Protective Footwear*, the following determinations have been made:

\_\_\_\_\_ Numerous tasks conducted throughout any given workday place employees at Global Water Resources. at risk of exposure to hazards that may cause occupational foot injuries. While there are numerous exposures, the primary source of exposure is from falling tools, material and equipment (e.g., hammers, wrenches, fittings, pipes, meters, etc.). Other potential exposures include injuries from rolling material, equipment and vehicles.

\_\_\_\_\_ Ergonomic issues need to be considered for individuals performing tasks requiring excessive walking. Comfort and support can reduce the probability of fatigue-related injuries.

\_\_\_\_\_ Some individuals, primarily in the production department, require electrical hazard shoes because they work on or around electrically charged equipment.

\_\_\_\_\_ Chemical hazards are also present in the production department. Rubber or latex boots are required when working with caustic materials. In addition, all production department shoes are required to have soles rated good-to-excellent for chemical resistance to prevent inadvertent exposure.

\_\_\_\_\_ Metatarsal protection will only be required when operating jackhammers, tampers or other similar equipment. This determination was based on the high risk and uncontrollability of the equipment being used in these type of operations.

Based on the above information, it has been determined that safety footwear must be worn by all outside commercial, production and distribution employees when performing job tasks for Global Water Resources.; furthermore, all supervisory personnel or other employees (e.g. Accident Prevention Council members) who may be required to visit locations where hazards are present will be required to wear protective footwear.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT –FOOT PROTECTION**

The management from each operating location, along with input from the (enter title), manager of Workplace Safety and various vendors, have established a selection of safety equipment which satisfies the appropriate regulatory requirements. The assessment and selection process is ongoing and is updated periodically based on comments and suggestions from employees, changes in regulations and/or standards, and availability of new equipment. Sampling of new material, equipment and design will be performed to determine applicability to our operations.

# **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – EYE AND FACE PROTECTION**

In compliance with *29 CFR, Part 1910, Subpart I, Personal Protective Equipment*, Job Safety Analyses have been reviewed for job tasks performed by all commercial, distribution, production and water quality employees at Global Water Resources. (AW). Global Water Resources. The purpose was to determine the existence of hazards that may require employees to wear protective equipment to protect their eyes and/or face.

Based on information provided on the Job Safety Analyses as well as information obtained from ANSI Z87.1-1989, the *American National Standard for Occupational and Educational Eye and Face Protection*, it has been determined that numerous tasks conducted throughout any given workday place employees of Global Water Resources. at risk of exposure to hazards that may cause occupational eye or face injuries. These hazards include: cutting, grinding or chipping operations (all departments), operation of jackhammers and/or paving breakers, working with hazardous substances (e.g. chemicals), and welding operations.

Based on the above information, it has been determined that occupational face and eye protection must be work in the following situations:

- \_\_\_\_\_ Any and all manual or mechanical operations involving cutting, chipping or grinding,
- \_\_\_\_\_ Flaring copper,
- \_\_\_\_\_ Operating jackhammers or tampers,
- \_\_\_\_\_ Performing any work on chemical lines,
- \_\_\_\_\_ Pouring or transferring chemicals from one container to another,
- \_\_\_\_\_ Performing any work with, on or around hydraulic and/or pneumatic tools,
- \_\_\_\_\_ Performing any work or operating any equipment which releases radiant energy (e.g. gas and electric arc welding),
- \_\_\_\_\_ Oxygen cutting or torch soldering,
- \_\_\_\_\_ Any and all situations or areas identified by supervisory personal as a hazard area.

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – EYE AND FACE PROTECTION**

The requirement to wear occupational eye and face protection applies to all Global Water Resources employees who perform any of the above-described duties as well as to all supervisory employees or other employees (e.g. Accident Prevention Council members) who may be required to visit locations where hazards are present.

It is the responsibility of each employee to inspect all safety equipment to ensure no defects exist. Any cracks, breaks or leakage require issuance of new protective equipment. All safety goggles, safety glasses, face shields, etc. need to be cleaned periodically.

The management from each operating location, along with input from the (enter title), manager of Workplace Safety and various vendors, have established a selection of safety equipment which satisfies the appropriate regulatory requirements. The assessment and selection process is ongoing and is updated periodically based on comments and suggestions from employees, changes in regulations and/or standards, and availability of new equipment. Sampling of new material, equipment and design will be performed to determine applicability to our operations.

The following criteria have been established for all occupational eye and face protective equipment utilized by Global Water Resources personnel:

1. All eye and face protective devices shall meet the requirement of ANSI Z-87.1-1989.
2. Safety spectacles will be worn whenever job tasks which require protection from impact are being performed. The safety spectacle must consist of a front with bridge area, a lens or lenses, temples and side shields. Safety spectacles come in both clear and shaded lenses. Various styles are available for selection by employees.
3. Goggles will be worn when working with any liquid or powdered hazardous substance. Goggles are designed to protect eyes, not only from impact but also from hazardous dust and liquids. To maximize protection against liquid hazards, only goggles designed for indirect ventilation or with no ventilation shall be utilized due to the potential for fogging; indirect ventilation goggles will be the primary choice.
- 3a. In addition to safety spectacles/goggles, face shields will be required whenever any manual or mechanical cutting, chipping or grinding operations are performed. Additionally, face shields will be required when working on or around any chemical lines or while transferring chemicals from one container to another.

Face shields shall be considered secondary protective devices and shall be used only in conjunction with primary protectors (spectacles, goggles).

## **HEALTH & SAFETY PROCEDURES MANUAL** **HAZARD ASSESSMENT – EYE AND FACE PROTECTION**

4. Welding helmets will be required for employees who perform any welding (gas, electric arc, etc.) or oxygen-cutting operations. Welding helmets are a secondary protector and shall be used only in conjunction with primary protectors (spectacles, goggles). There are three styles of welding helmets which are acceptable: (1) stationery lens, (2) lift front, or (3) hand shield.

In compliance with acceptable standards, protective devices against radiant energy generated during welding, cutting or soldering operations shall provide a minimum of the following protective shielding:

### **Job Shading Comments**

Welding gas	4 to 8	Shading will vary depending upon the plate thickness of the object being welded.
Electric Arc	10 to 14	Shading will be determined by the arc current.
Cutting	3 to 6	Shading will be determined by the plate thickness of the object being welded.
Torch Brazing	4	
Torch Soldering	3	

Light filtering can be utilized either in the welding helmet lens or the primary eye protection device.



**HEALTH & SAFETY PROCEDURES MANUAL**  
**HAZARD ASSESSMENT – CONTROL OF HARMFUL**  
**SUBSTANCES BY VENTILATION**

\_\_\_\_\_ Is the volume and velocity of air in each exhaust system sufficient to gather the dusts, fumes, mists, vapors or gases to be controlled, and to convey them to a suitable point of disposal?

\_\_\_\_\_ Are exhaust inlets, ducts and plenums designed, constructed, and supported to prevent collapse or failure of any part of the system?

\_\_\_\_\_ Are clean-out ports or doors provided at intervals not to exceed 12 feet in all horizontal runs of exhaust ducts?

\_\_\_\_\_ Where two or more different types of operations are being controlled through the same exhaust system, will the combination of substances being controlled constitute a fire, explosion or chemical reaction hazard in the duct?

\_\_\_\_\_ Is adequate makeup air provided to areas where exhaust systems are operating?

\_\_\_\_\_ Is the intake for makeup air located so that only clean, fresh air, which is free of contaminants, will enter the work environment?

\_\_\_\_\_ Where two or more ventilation systems are serving a work area, is their operation such that one will not offset the functions of the other?

**Sanitizing Equipment & Clothing**

\_\_\_\_\_ Is personal protective clothing or equipment that employees are required to wear or use, of a type capable of being easily cleaned and disinfected?

\_\_\_\_\_ Are employees prohibited from interchanging personal protective clothing or equipment, unless it has been properly cleaned?

\_\_\_\_\_ Are machines and equipment which process, handle or apply materials that could be injurious to employees, cleaned and/or decontaminated before being overhauled or placed in storage?

\_\_\_\_\_ Are employees prohibited from smoking or eating in any area where contaminants are present that could be injurious if ingested?

\_\_\_\_\_ When employees are required to change from street clothing into protective clothing, is a clean change room with separate storage facility for street and protective clothing provided?

**HEALTH & SAFETY PROCEDURES MANUAL**  
**HAZARD ASSESSMENT – CONTROL OF HARMFUL**  
**SUBSTANCES BY VENTILATION**

\_\_\_\_\_ Are employees required to shower and wash their hair as soon as possible after known contact has occurred with a carcinogen?

\_\_\_\_\_ When equipment, materials or other items are taken into or removed from a carcinogen-regulated area, is it done in a manner that will not contaminate non-regulated areas or the external environment?