

# **Benzene and Hydrogen Sulfide (H<sub>2</sub>S) Safety Program**

## **Purpose**

The purpose of this program is to establish guidelines and procedures in the operations and maintenance of benzene and H<sub>2</sub>S containing atmospheres at E Light Electric Services to protect all employees, contractors, visitors and vendors from potential health hazards of benzene and H<sub>2</sub>S containing atmospheres and related diseases.

This Program applies to all buildings and structures owned by E Light Electric Services, to all employees and subcontractors of E Light Electric Services, to occupants of E Light Electric Services buildings and to E Light Electric Services projects who may come into contact with or disturb benzene and H<sub>2</sub>S containing atmospheres. The Program applies to routine work during which an employee might encounter benzene and H<sub>2</sub>S containing atmospheres as well as work undertaken to repair or remove benzene and H<sub>2</sub>S containing atmospheres.

## **Policy**

It is the policy of E Light Electric Services that only qualified employees shall be involved in any repairs, maintenance or removal of any materials where the listed materials or gases are present. All unqualified employees shall be protected from exposure to benzene and H<sub>2</sub>S containing atmospheres by isolating and controlling access to all affected areas during benzene and H<sub>2</sub>S containing atmospheres work. All tasks involving the work in benzene and H<sub>2</sub>S containing atmospheres will be conducted only after appropriate work controls have been identified and implemented. A qualified supervisor shall be available at benzene and H<sub>2</sub>S containing atmosphere controlled work sites during all activities. Proper personal protective equipment and air monitor warning systems shall be maintained and worn at all times that employees are working in areas that may contain benzene or H<sub>2</sub>S gases. If outside contractors are used, the company shall ensure all contractor employees have been properly trained and have been issued proper equipment and protective gear. Each subcontractor shall be responsible for supplying their employees with personal protective equipment and air monitors as required for individual projects.

## **Responsibilities**

### **Management**

- Ensure all Benzene and H<sub>2</sub>S containing atmospheres are identified and warning signs are posted

- Ensure training is effective for employees and that each employee knows how to properly test and wear their air monitor.
- Establish engineering controls for all work with benzene and H<sub>2</sub>S containing atmospheres material.
- Coordinate with building owners, owners' representatives and general contractors to ensure E Light Electric Services employees are not exposed to benzene and H<sub>2</sub>S containing atmospheres hazards and/or benzene and H<sub>2</sub>S containing atmospheres hazards are mitigated prior to the performance of work
- Ensure E Light Electric Service employees are informed of benzene and H<sub>2</sub>S containing atmospheres hazards and mitigations on each project.

### **Supervisors**

- Qualified supervisors shall provide effective on-site management during work with benzene and H<sub>2</sub>S containing atmospheres.
- Supervisors will notify the Director of Education and Loss Prevention immediately upon discovering benzene and H<sub>2</sub>S containing atmospheres.

### **Employees**

- Qualified employees must follow the exact procedures established for the project for work in areas containing benzene and H<sub>2</sub>S gases.
- Unqualified employees are to stay clear of all benzene and H<sub>2</sub>S containing atmospheres work areas.

### **Hazards**

BENZENE

#### **Physical Description**

Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]

#### **Exposure Routes**

Inhalation, skin absorption, ingestion, skin and/or eye contact

#### **Symptoms**

Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression

**NOTE:** Potential occupational carcinogen

<b>Personal Protection/Sanitation</b>  <b>Skin:</b> Prevent skin contact <b>Eyes:</b> Prevent eye contact <b>Wash skin:</b> When contaminated <b>Remove:</b> When wet (flammable) <b>Change:</b> No recommendation <b>Provide:</b> Eyewash, Quick drench	<b>First Aid</b>  <b>Eye:</b> Irrigate immediately <b>Skin:</b> Soap wash immediately <b>Breathing:</b> Respiratory support <b>Swallow:</b> Medical attention immediately
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## HYDROGEN SULFIDE ( H<sub>2</sub>S)

### Physical Description

Colorless gas with a strong odor of rotten eggs. [Note: Sense of smell becomes rapidly fatigued & can NOT be relied upon to warn of the continuous presence of H<sub>2</sub>S.

### Exposure Routes

Inhalation, skin and/or eye contact

### Symptoms

Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance

<b>Personal Protection/Sanitation</b>  <b>Skin:</b> Frostbite (Liquid) <b>Eyes:</b> Frostbite (Liquid) <b>Wash skin:</b> No recommendation <b>Remove:</b> When wet (flammable) <b>Change:</b> No recommendation <b>Provide:</b> Personal Air Monitor. Evacuate when alarm produced by air monitor.	<b>First Aid</b>  <b>Eye:</b> Frostbite <b>Skin:</b> Frostbite <b>Breathing:</b> Respiratory support, remove from area
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## **Hazard Control**

### **Engineering Controls**

Engineering controls include the use of personal air monitor warning systems, evacuation procedures, evacuation muster areas safe from potentially exposed areas, use of respirators based on exposure potential.

### **Administrative Controls**

Written procedures and management authorizations are required for all work involving benzene and H<sub>2</sub>S containing atmospheres.

### **Training Controls**

All personnel shall receive training on benzene and H<sub>2</sub>S containing atmosphere hazards, mitigations and procedure before working on a project that has any of these atmospheres normally or where the potential of these atmospheres exist. This training shall be coordinated by the Director of Education and Loss Prevention and records of training shall be kept and made available upon request.

All subcontractors shall provide the Director of Education and Loss Prevention records of completed training for any employee that will be assigned to an E Light Electric Services project where these atmospheres may exist.

## **Definitions**

**Benzene and H<sub>2</sub>S containing atmospheres** - Benzene and H<sub>2</sub>S containing atmospheres is a generic term describing a location where Benzene or Hydrogen Sulfide may be present in levels above the NIOSH recommended levels for a safe work environment.

### **Benzene and H<sub>2</sub>S containing atmospheres Work Categories -**

#### **Category 1**

Work in areas where Benzene or H<sub>2</sub>S is present in the work area above safe exposure limits as a normal condition.

#### **Category 2**

Work in areas where Benzene or H<sub>2</sub>S may be present in the work area above safe exposure limits due to an accidental release, release from an adjacent area or other non-normal operational event.

### **Category 3**

Work in areas where Benzene or H<sub>2</sub>S may be present in the work area or project site and through testing and or monitoring it has been determined that the area does not contain benzene or H<sub>2</sub>S gases in excess of safe exposure limits.

### **General Rules**

When in doubt, treat all work areas where the potential of Benzene or H<sub>2</sub>S exists as containing benzene and H<sub>2</sub>S containing atmospheres and comply with all applicable rules and regulations and protective measures until through monitoring or testing the area has been determined to be a Category 3 work area.

All Benzene and H<sub>2</sub>S containing atmospheres category 2 and 3 shall require the wearing of a personal air monitoring warning device by all employees in the work area.

**NOTE:** Site specific procedures may be developed and submitted for approval to allow for work without monitors based on work being done in a category 2 or 3 work areas.

E Light Electric Services personnel and contractors shall not enter a Category 1 area unless they have completed the respirator program and are equipped with an appropriate respirator for the atmosphere and have completed all the procedures for entrance into a category 1 area.

**NOTE:** It is our intention that no E Light Electric Services personnel or contractor personnel should enter into a Category 1 area.

Any employee who believes they are working in an area where Benzene or H<sub>2</sub>S gases are present, shall immediately alert others in the area and all employees shall evacuate the area and supervision shall be notified. Supervision shall coordinate a test of the area with air monitors and coordinate with the building owner or building owner's representative to determine the air quality before employees are allowed to return to work.

### **Benzene and H<sub>2</sub>S containing atmosphere Identification**

Benzene and H<sub>2</sub>S containing atmosphere areas shall be clearly identified by signage and all employees shall be briefed daily on the locations of these areas and the category of the work area.

## **Inspection**

The E Light Site Supervision shall be responsible for inspecting work areas prior to the start of procedures to ensure the absence of or identification of benzene or H<sub>2</sub>S atmospheres. The site supervision shall immediately notify the Director of Education and Loss Prevention and the building owner's representative of any benzene and H<sub>2</sub>S containing atmospheres hazards that are discovered and that are not identified.

## **Evacuation Procedures and Wind Direction Marking**

All projects where category 1, 2 or 3 work may be performed shall have written evacuation procedures which shall include evacuation routes, evacuation alarms, muster locations, secondary and tertiary muster areas in the event the primary or secondary muster area is exposed, employee accounting and return to work area procedures.

All projects where category 1, 2 or 3 work may be performed in an outdoor environment shall be provided with windsocks that are activated by 10 mph or great wind speeds. Windsocks shall be placed at all employee entrance and exit points and also placed so that a windsock is visible from all work areas where employees will be located during their work shift.

In the event of an evacuation in outdoor area, employees shall immediately identify the wind direction and then proceed in a calm and orderly manner to the primary or secondary muster areas. They shall proceed in a way that will keep the wind blowing across their bodies. They shall maintain a walking position that keeps the wind from blowing at their back or front of their body. They will choose to move towards a muster area that permits their movement in this manner.

All projects where category 1, 2 or 3 work may be performed in an outdoor environment shall designate their primary and secondary muster areas so that they are in locations that are located north and east or south and west approximately and located so that employees may evacuate to one of the sites in a manner described above regardless of the direction of wind.

## **Training**

All E Light Electric Services employees will be trained to carry out their work without endangering themselves, their coworkers or other building occupants while working in areas containing benzene and H<sub>2</sub>S atmospheres.

### **Training Outline**

All E Light Electric Services personnel shall complete Benzene and H<sub>2</sub>S containing atmospheres Awareness Training before working on a project where these atmospheres may be present.

This training shall include:

- The properties of Benzene and H<sub>2</sub>S and exposure limits.

- Ways to recognize benzene and H<sub>2</sub>S containing atmospheres

- The hazards of benzene and H<sub>2</sub>S containing atmospheres.

- Types of activities which could release benzene and H<sub>2</sub>S containing atmospheres.

- The E Light Electric Services Benzene and H<sub>2</sub>S containing atmospheres Safety Program

- State and Federal regulations regarding work in benzene and H<sub>2</sub>S containing atmospheres and disposal of benzene and H<sub>2</sub>S containing atmospheres.

- Site specific procedures for working in areas with potential benzene and H<sub>2</sub>S atmospheres.

- Evacuation procedures

- First aid and medical response in the event of exposure

- Correct inspection and use of personal air monitor systems.

Training will be specific to each project and employees must complete training for specific project.

Only those that have completed the training will be allowed to work in areas containing benzene and H<sub>2</sub>S containing atmospheres materials.

Subcontractors shall ensure all their employees have received Benzene and H<sub>2</sub>S containing atmospheres Awareness training. Subcontractors shall submit training records for all their employees to the Director of Education and Loss Prevention.