



**Amsys Energy, LLC**

**Safety and Health Program**

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## **1.0 INTRODUCTION**

The Amsys Energy, LLC [Amsys Energy] Safety and Health (S&H) Program Manual and the Amsys Energy Safety Handbook contain management programs, work practices and processes (hereinafter referred to as the S&H Program) that must be followed by all Amsys Energy employees and Subcontractors.

## **2.0 POLICY STATEMENT**

### **2.1 100% ACCIDENT FREE**

Amsys Energy is committed to:

- Safe and efficient work execution.
- Maintenance of a safe work environment.
- The safety and welfare of all employees and the public.

Amsys Energy expects all employees and Subcontractors to fulfill this commitment by striving to achieve a “100% Accident Free” performance each day based on four key elements:

- Management commitment and leadership.
- Employee commitment and participation.
- The belief that all accidents are preventable.
- Execution of prevention-based safety programs.

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Khalid (Ken) Parekh

Khalid (Ken) Parekh  
Founder, Chairman & CEO  
Amsys Group

### **3.0 S&H PROGRAM ADMINISTRATION**

#### **3.1 ORGANIZATIONAL STRUCTURE AND ADMINISTRATION**

The Amsys Energy Safety Committee, in conjunction with the Amsys Energy Senior Management Team, is responsible for developing and implementing the Amsys Energy Safety Program, which provides professional and appropriate S&H guidance and support to the Field Management team.

Safety Committee activities include:

1. Providing S&H advice to all levels of the organization.
2. Ensuring that technical S&H resources are available.
3. Establishing and maintaining S&H training requirements and programs.
4. Requiring implementation of the S&H Program.
5. Continually assessing hazards and amending work execution plans.
6. Ensuring that S&H audits and assessments are conducted, and follow-up corrective actions are implemented.
7. Monitoring and disseminating information on S&H regulatory requirements.
8. Supporting emergency response plans and procedures.
9. Supporting incident reporting and investigation.
10. Measuring and communicating S&H performance.
11. Monitoring and assessing Subcontractor S&H performance.

#### **3.2 THE S&H MANAGEMENT PROCESS**

Amsys Energy Field and Subcontractor Management must continually manage S&H issues in accordance with the S&H Management Process.

The process follows a Four Step continuous improvement model.

The “*planning*” stage involves identifying the hazards and aspects of a project and designing management programs and engineering controls to mitigate these hazards and aspects.

The “*doing*” stage involves implementing controls over project activities to ensure that the hazards and aspects of a project are properly addressed.

The “*checking*” stage involves checks on control measures through audits, assessments, field inspections, and site walks to ensure implementation of corrective measures.

Finally, the “*acting*” stage involves reviewing the performance of the project in relation to the S&H Program and making any changes to ensure that the S&H Program remains effective and demonstrates continuous improvement in S&H performance.

### **3.3 ROLES, RESPONSIBILITIES AND LEADERSHIP**

#### **3.3.1 Management**

The Amsys Energy Senior Management team is responsible for implementing and managing the S&H Program to enable Project Managers, Supervisors, Employees, and Subcontractors to know what is expected. Branch Management will be held accountable for meeting these responsibilities.

Branch Management must ensure during all phases of projects that:

- S&H policies and procedures are communicated to employees.
- Acceptable S&H conditions are maintained.
- Employees are qualified to perform assigned work.
- This S&H Program is included as a contractual requirement for all subcontractors.
- Adequate resources are allocated to fully implement the S&H Program.
- Risk/hazard assessments are conducted, and appropriate measures are developed to mitigate hazards and safeguard employees prior to starting work.
- Regular inspections of work areas are conducted to ensure a safe work environment.
- Correct tools, training, and equipment are provided for each task.
- Tools and equipment are inspected for deficiencies and include current certifications.
- Reports and records are provided as necessary to document accidents/incidents.
- Monthly S&H performance reports are provided by the fifth workday of the following month.
- S&H information issued by the Amsys Energy Safety Committee is reviewed, applied, and disseminated appropriately to all employees.

#### **3.3.2 Field Supervisors**

Supervisory employees must provide leadership and guidance as well as maintain communication, cooperation, and teamwork among their assigned employees. Supervisors must implement procedures and provide instruction for safe and efficient work execution.

Supervisors are responsible for:

- Cooperating with, and actively participating in audits and assessments.
- Conducting and documenting reviews of work assignments, the hazards associated with each assignment, and the measures required completing work safely. The approved JSA form shall be completed as required.
- Ensuring that all employees are informed of the requirements of the S&H Program regarding their respective roles and responsibilities.
- Ensuring regular monitoring and auditing of work areas for S&H performance.

### **3.3.3 Field Managers**

The Field Operations Manager or equivalent shall be responsible for monitoring Safety and Health issues at each job site.

This individual shall be responsible for:

- Responding to safety concerns and requirements.
- Conducting periodic S&H site audits/assessments.
- Providing information necessary to develop S&H orientations to acquaint employees with conditions, safe work practices, and procedures.
- Monitoring compliance with applicable S&H requirements.
- Providing training and advice to employees on S&H regulations, inspections, and activities.
- Monitoring compliance with fire prevention and protection requirements.
- Conducting and participating in S&H meetings, including incident investigations & reporting.
- Supplying information necessary to maintain the S&H communication system.

### **3.3.4 Subcontractor Employees**

All Subcontractor employees are responsible for:

- Working safely always to protect themselves, fellow employees and the environment.
- Learning and abiding by those S&H rules and procedures applicable to their work tasks.
- Reporting substandard practices or conditions to their supervisor.
- Attending S&H training, as needed.
- Participating in identifying and eliminating hazards.
- Promptly reporting any near miss, accident, or injury to their supervisor, the Amsys Energy Project Manager, and the Amsys Energy Branch Safety Representative.
- Correcting or initiating corrective actions for all unsafe acts and conditions.

### **3.3.5 S&H Leadership Behaviors**

**Safe Working Environment** – Amsys Energy management employees shall strive to provide and maintain a safe working environment by encouraging two-way communication between management and employees, facilitating an atmosphere of trust, listening to employee suggestions and complaints and taking appropriate steps without reprisals in response to concerns forwarded by employees. Employee behavior alone cannot guarantee a safe environment. Amsys Energy shall provide a workplace free from recognized hazards and continue to educate and coach employees to avoid at-risk behaviors.

**Leadership Behaviors** – Amsys Energy management shall take a proactive approach to incident/accident prevention. The approach shall focus on reducing at-risk behaviors and increasing safe behaviors that can contribute to injury prevention.

**Managing Behaviors** – More than 90% of injuries are caused by at-risk behaviors (unsafe acts). Amsys Energy management shall focus on the following steps to assist employees and supervisors to reduce at-risk behaviors and jobsite incidents:

### **1. General Goals**

Focus on behaviors by ensuring supervisors and employees:

- Understand the process of at-risk behavior / accident / injury.
- Reduce occurrences of at-risk behaviors.
- Identify and reinforce safe behaviors.
- Remove obstacles that prevent unsafe behavior
- Strive to increase employee involvement through incentives and recognition.

### **2. At Risk Behaviors**

To help reduce at-risk behaviors all employees shall focus on the following safe behaviors:

- Wearing Personal Protective Equipment (PPE): hard hats, glasses, gloves, and fall protection *whenever* required.
- Staying out of the line of fire (e.g., not working under loads or in other potential pinch points).
- Keeping eyes on path (while walking, climbing, or driving specifically).
- Securing tools (with lanyards or equivalent) to prevent dropping.
- Maintaining a safe distance from antennas to prevent exposure to electromagnetic energy (EME).

Employee behavior alone cannot guarantee a safe environment. A workplace free from recognized physical hazards is also required. All employees have the right to work in areas that are free from recognized hazards that may cause, or be likely to cause, death or serious harm.

## **3.4 EDUCATION AND TRAINING**

Amsys Energy and Subcontractor management are responsible for ensuring that employees, prior to beginning work, are trained for their assigned scope of work, including any specialized training recommended by applicable manufacturers and/or suppliers. All training and education shall be documented and available for review upon request. Training records shall include subject, date, time, names of trainees, and name of qualified instructor.

### **3.4.1 Hazard Communication**

Employees shall be trained to:

- Identify the hazardous properties of materials they handle.

- Know where to get information concerning potentially hazardous materials they are required to handle.
- Be able to use Material Safety Data Sheets (MSDS).
- Notify management of any hazardous materials brought or found on site.

### **3.4.2 Driver Safety**

Each employee assigned to drive a company vehicle must possess a valid driver's license for the class of vehicle they will operate and receive instruction concerning vehicle inspection and safe driving prior to operating the vehicle. In addition, they must be included on the Amsys Energy authorized Driver's List maintained by the Safety Committee.

### **3.4.3 Motorized Equipment Operator Training**

All employees who operate motorized equipment, including but not limited to Forklifts, Articulating Boom Platforms, and Aerial Lift devices shall have received the proper training.

## **3.5 RECORDKEEPING**

### **3.5.1 Environment, Safety and Health Documentation/Recordkeeping Requirements**

The Amsys Energy Corporate Safety Representative shall maintain on file:

- The Amsys Energy Safety and Health Program.
- Records of all employee training.
- Monthly Branch Safety Reports.
- OSHA Recordable Injury and Illness (OSHA 300) Logs.

### **3.5.2 Site Information**

The following information shall maintain on site (via binder, clipboard, or other appropriate means) and made available to all subcontractors and employees:

- Daily JSA for the current activities being performed and the Emergency Contact Sheet.

### **3.5.3 Toolbox Talks**

Each supervisor must conduct a daily Toolbox Safety and Health Talk that covers the scope of work that is to be performed that day. Documentation of these meetings, the topics discussed, and the names of the attendees shall be maintained in the job folder.

## **4.0 S&H MANAGEMENT PROGRAMS**

### **4.1 SUBCONTRACTOR SELECTION**

#### **4.1.1 Review of Qualifications**

Prior to contracting work to a Subcontractor, the Amsys Energy Project Manager shall consider the qualifications of prospective subcontractors, including but not limited to, training, S&H programs, past S&H performance, and current supervisor qualifications/experience. Subcontractors shall meet all requirements as described in this program and have an approved Master Services Agreement on file with the Amsys Energy Legal Department.

### **4.2 INCIDENT MANAGEMENT AND REPORTING**

#### **4.2.1 Assessment**

Amsys Energy Field Management shall immediately assess each incident for the following:

- Scope of the incident — injury to personnel, damage to property or service interruption.
- Severity of the incident — e.g., life-threatening.
- Community impacts — public/environmental impact, evacuation, and property damage.
- Determination of facts — who, what, when, where, and why (no speculation or opinions).

#### **4.2.2 Incident Management**

Each incident shall be managed according to its severity:

- Render aid.
- Contact appropriate emergency response personnel.
- Initiate safety procedures to ensure employees and the public are safeguarded.
- Initiate measures to immediately mitigate environmental impacts.
- Secure the scene & preserve evidence.

#### **4.2.3 Notification**

Amsys Energy /Subcontractor

Management shall:

- Ensure that the employee immediately reports the incident to his/her supervisor.
- Notify the Amsys Energy Corporate Safety Representative ASAP.
- Notify the Amsys Energy Project Manager (as indicated on the JSA) immediately of any incident or event (e.g., injury, property loss, fire, fire suppression release, civil/public disturbance).

#### **4.2.4 Investigation**

Amsys Energy /Subcontractor Management in conjunction with the Amsys Energy Safety Committee shall investigate each incident, including near miss events:

- Take digital photographs of the incident site.
- Conduct and document interviews. Document the investigation by completing the Amsys Energy Incident Investigation Report.
- Support and/or cooperate with any subsequent Amsys Energy investigation.

#### **4.2.5 Reporting**

Amsys Energy /Subcontractor Management shall provide a copy of the Incident Investigation Report to the Amsys Energy Corporate Safety Representative and authorized Amsys Energy market representative within one day of the incident.

#### **4.2.6 Subcontractor Responsibilities**

Subcontractor responsibilities include:

- Implementing the audit and assessment process and providing the personnel, facilities, and other resources necessary to effectively conduct site assessments and safety program audits.
- Performing and documenting site assessments.
- Ensuring that corrective actions are identified, assigned, and completed in a timely manner.
- Maintaining (and making available for review by Amsys Energy upon request) a copy of all audits, assessments, inspections, and corrective actions taken.
- Conducting and documenting audits, assessments and inspections, and corrective actions. Documentation shall be made available to Amsys Energy upon request.

## **5.0 FIELD PROCESSES**

The processes described in this section of the S&H Program reflect Amsys Energy and industry practices, and regulatory requirements, and provide protection to employees, project personnel, and neighboring communities.

### **5.1 SAFE WORK PLANNING**

#### **5.1.1 Requirements for Job Safety Analysis**

Amsys Energy Field Management shall effectively plan their work. A review of work assignments, the hazards, associated with each assignment, and the measures necessary to protect against the identified hazards shall be conducted and documented for each site. This shall be accomplished through a Job Safety Analysis (JSA) (These requirements shall extend to all Subcontractors).

The elimination or control of hazards should be implemented first by engineering methods, then by administrative methods and, as a last resort, by the proper use of personal protective equipment (PPE).

#### **5.1.2 Conducting the Job Safety Analysis (JSA)**

To ensure that supervisors and their employees review hazards and develop appropriate control measures before each task is performed; a JSA shall be completed at least daily and more frequently as needed based on changes to tasks and conditions. The JSA shall also be used to communicate the hazards and control measures to crewmembers at the start of each day and more frequently when conditions/activities warrant.

#### **5.1.3 JSA Review**

The following specific areas are to be included in all JSAs and discussed at least daily:

- Health and safety hazards associated with the job/task.
- Controls needed to eliminate the hazards.
- Hazardous energy isolation as needed (lockout/tag out).
- Special work procedures required by the job.
- Special precautions related to the equipment or assignment.
- PPE required by the work environment (fall protection/restraint).
- Emergency response.

#### **5.1.4 Verification of Safety Preparedness**

The daily (pre-work) JSA is the final checkpoint for verifying the safety preparedness of the crew at the jobsite. As such, the discussion must verify that:

- Crewmembers feel physically and medically capable of safely performing assigned tasks.
- Tools and machinery are in good condition and properly equipped with safeguards.
- First aid or medical provisions are available on the Emergency Contact Sheet.
- High-risk activities/jobs are specifically reviewed.
- Documentation of JSA shall be maintained on site while work is being performed.

#### **5.1.5 Stop Work Authority**

All employees have the right to a safe and healthy work environment. In the event of imminent danger to the safety and health of workers, the public, or the environment, any and all personnel have both the right and responsibility to stop work. Work activity will resume following concurrence of those that stopped work, Amsys Energy market management, and the Amsys Energy Area S&H Supervisor that appropriate measures have been implemented to facilitate safe work.

### **5.2 UTILITY AVOIDANCE**

#### **5.2.1 General Requirements**

The following steps, at a minimum, should be followed to ensure the avoidance of underground utilities.

#### **5.2.2 Notification**

- Contact “Utility Locator” as required by state, county, and local laws.
- Review permitted CDs and “Utility” site specific design drawings when they become available, lay out (paint white line) the proposed routing of utility trench(s) and any coax duct bank trench as shown on the drawings. Also include any posthole locations to be dug for the ice bridge.
- Observe all water hose bibs, gas meters, sprinkler heads, perimeter lighting, etc., in the area and determine the apparent route in reference to the site and proposed utility routing(s).
- Retain a (private) underground locator service if necessary.
- If no response is received from the utility service, do not proceed with excavations until all information has been reviewed by the Amsys Energy Project

#### **Manager. 5.2.3 Pre-Job Conference and Line Identification**

- Invite utility company representatives to the pre-construction job walk.
  - Contact utility owner and understand their method for locating utilities.

The following are color-coding and symbols for marking underground facilities:

Color/Utility	Symbol	Facility
Blue/Water	W	Water
Orange/Communication CATV	FA TEL R TV	Fire Alarm Telephone Railroad Television
Green/Sewer and Water Drainage	S D	Sewer Storm Drain
Red/Electric	L E T	Street Lighting Electric Traffic Signal
Yellow/Gas Oil Steam	G Co. Name	Gas Oil and Chemical
Pink/Temporary Survey		Survey-Markings
Purple/Reclaimed Water		Reclaimed Water
White		Proposed Excavation

#### 5.2.4 Utility Locating (Potholing), Marking and Protection

All utilities must be physically located by the following methods:

- Non-destructive vacuum extraction (potholing) must be used to verify existence of and determine the exact location of the marked utility.
- Other methods that may be used are Ground Penetrating Radar, Subsurface Utility Tracing, Lateral Identification, and Directional Boring Profile Mapping.
- When locating underground utilities, hand dig with non-conductive tools.
- Use extra care when locating gas lines.

#### 5.2.5 Mechanical Digging

- Select equipment to minimize vibration/shock to underground utilities.
- Dedicate a ground spotter while digging.
- Once the utility is exposed, brace, sheet or shore the utility to eliminate damage.

#### 5.2.6 Utility Hits

- If damage occurs to a line, implement the Emergency Action Plan.

- Immediately contact the affected utility company.
- Emergency numbers for all utility companies shall be available at every work location.
- Incident shall be investigated with corrective actions and preventive actions documented, communicated, and tracked to closure.

### **5.2.7 Other Utility Information**

- If the work activity involves drilling, core boring, saw cutting, demolition, trenching, excavating, directional boring, plowing, grading, or any other method of penetrating a surface that may contain public or private utilities, or when structural integrity may be compromised, first utilize the appropriate subsurface object location methodologies.
- Note that cutting of rebar, embedded tensioned members or other embedded structural members is not permitted. Cutting of embedded structural objects may only take place after first obtaining the appropriate written engineering approval(s).
- Use as-built drawings for the building, facility, or exterior area.
- Use the local/state One-Call system for location of public utilities. Use a private utility locating service for areas to be disturbed on private property.
- Observe the surrounding area for unmarked service to vent risers, hydrants, manholes, utility vaults, valve caps, generators, light poles, irrigation systems, traffic controls, cable boxes, phone boxes, transformers, etc., as the final line of defense.

## **5.3 EXCAVATING AND TRENCHING**

### **5.3.1 Guidelines**

The following guidelines will be followed when excavations or trenching is required:

- Excavations or trenches are planned, proper permits and other documents are prepared, and a Competent Person inspects the site daily and is available on-site during excavation activities.
- Surface hazards and spoil piles are at least two feet from the edge of the excavation.
- Underground utilities are located and protected, supported, or removed.
- Excavations and trenches are appropriately identified with signs, warnings, and barricades.
- Barricades are at least 6 feet from open edges of trenches and excavations.
- Safe means of entry and exit are provided for excavations more than 4 feet deep, with access/egress ladders no more than 25 feet from all employees in the trench/excavation.
- Walkways, bridges, or ramps with standard guardrails are provided where employees or equipment are required to cross over excavations or trenches.
- Surface obstacles such as trees, rocks, and sidewalks are removed or secured.

- Employees wear high-visibility garments when exposed to nearby vehicular traffic.
- Employees DO NOT stand/work under a load.
- A warning system is established when the operator of mobile equipment does not have a clear and direct view of the edge of the excavation while the equipment is being operated adjacent to or near the edge of excavation.
- Excavations 4 feet or deeper in which a hazardous atmosphere may develop are also classified as a confined space.
- Areas that contain hazardous atmospheres are continuously monitored and the results recorded.
- Rescue equipment is provided where hazardous atmospheres exist or could reasonably be expected to develop during work in the excavation.
- De-watering equipment shall be provided before anyone works in an excavation where water accumulates.
- Adjacent structures are shored, braced, or underpinned when their stability may be endangered by the excavation activities.
- Protection is provided from loose rock or soil that could fall or roll from the excavation.
- Excavations/trenches left open shall be covered or properly barricaded when left unattended.

### **5.3.2 Excavation/Trenching Report**

An Excavation Report is required for excavations and trenches that are 5 feet deep or greater. An excavation report shall be completed by an Amsys Energy Competent Person and submitted to the Branch Manager for review prior to the commencement of any excavation or trenching activities. The permit must identify a competent person who has the authority to take prompt, corrective measures to eliminate problems. The responsible crew supervisor shall ensure the Excavation Permit and Daily Trench Safety Report are kept at the site of the excavation until the work has been completed. In addition, all excavations shall have an engineered drawing for reference showing the location of underground utilities.

### **5.3.3 Competent Person**

The Competent Person shall:

- Conduct daily inspections of excavations, adjacent areas, and protective systems for evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions prior to the start of each shift and as needed throughout the shift. This inspection shall be documented on the Daily Excavation and Trench Safety Report
- Inspect after every precipitation event or other occurrence that could increase the hazards.
- Remove employees from the excavation or trench if any hazards exist.

### 5.3.4 Soil Classification

It is important that supervisors understand and recognize the different types of soil:

<b>Stable Rock</b>	Natural solid mineral material that can be excavated with vertical sides and remain intact while exposed.
<b>Type A soil</b>	Examples include clay, silty clay, sandy clay, clay loam, and sometimes, silty clay loam and sandy clay loam.
<b>Type B soil</b>	Examples include silt, silt loam, sandy loam and sometimes-silty clay loam and sandy clay loam.
<b>Type C soil</b>	Examples include granular soils like gravel, sand loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable.

### 5.3.5 Determination of System

Employees shall be protected from cave-ins by an adequate protective system such as:

- Sloping
- Benching
- Shoring systems
- Shielding systems

The determination and design of a protective system shall be based on careful consideration of the following:

- Depth of the cut
- Anticipated changes in the soil due to air, sun, and water infiltration as well as ground movement caused by vehicle/equipment vibration and/or blasting
- Soil classification and earth pressures

### 5.3.6 Trench Shields

Trench shields or trench boxes may be portable or permanent and shall be capable of withstanding forces generated by a cave-in. They shall be used and maintained in accordance with the manufacturer's requirements and in a manner that prevents employee exposure to hazards. If equipment or materials are damaged, a Competent Person shall determine if they are suitable for continued use and document the review. Additional precautionary measures/actions include:

- Predictable failures such as sliding, falling, or kick-out shall be prevented by properly securing connections.
- Systems shall be installed and removed to protect employees from cave-ins, structural failures, or being struck by the trench system members. Disassembly shall progress from the bottom to the top. Members shall be released slowly to determine the potential for failure.

- Backfilling shall progress with the removal of the systems from the excavation. An independent, certified material testing laboratory shall be used to perform any required testing and Contractor shall maintain any/all testing records. Records shall be traceable to the specific placement.
- A dewatering and storm water/pollution protection plan shall be developed as required by either the project and/or local requirements.
- Backfilling operations shall be undertaken in a manner that avoids damage to underground commodities.
- Excavation of material shall not exceed 2 feet below the bottom of the support members. This level shall be permitted if the system has been designed to this excavated trench depth and there is no loss of material from behind the support system.

## 5.4 BARRICADES

- **Warning barricades** alert personnel to the existence of the hazard but afford no physical protection from the hazard. Typically, yellow “CAUTION” tape, orange “snow fence,” or ropes with signs are used as warning barricades.
- **Protective barricades** provide physical exclusion from the hazard area in addition to providing a warning. Protective barricades are often made from wood and could incorporate sawhorses, tube-loc scaffold components or other suitable material. Protective barricades must be capable of supporting 200 pounds of force in all directions.
- **Signs or tags** shall be used to provide personnel with important safety information concerning the hazards inside any warning or protective barricaded area. The signs or tags must be attached so they can be read from all potential access points. Lighting shall be provided to illuminate all entry areas when conditions warrant.

### 5.4.1 Warning Barricades

- Warning barricades are often yellow and black barrier tape labeled “CAUTION.” Personnel may go through these areas with caution after the hazard has been recognized.
- High hazard areas shall be barricaded using appropriate red and black barrier tape labeled “DANGER.” Only personnel assigned to the work in the hazard area shall be permitted inside this barricade. Entry by other personnel is prohibited.
- The area immediately beneath any overhead work area shall be considered a high hazard area or exclusion zone. “Danger” tape and a watch person shall be used to control entry into these high hazard work areas (i.e., high probability of falling objects).
- Where the superstructure of equipment is capable of rotating, the area defined by the swing radius shall be considered a high hazard area and shall be barricaded accordingly.
- All barricades shall be immediately removed when the hazard is removed.

### 5.4.2 Protective Barricades

- Protective barricades shall be used to provide personnel with physical protection from the hazard in addition to providing warning of the hazard. Hazards requiring protective

barricades are trenches and excavations, openings in grating or platforms, or any other exposure where personnel may fall to a lower level. Protective barricades must be capable of supporting 200 pounds of force in all directions.

- The top rail of a protective barricade should be made from 2-inch by 4-inch lumber or 1½-inch metal handrail material, arranged so that the top rail is 42 inches from the ground, floor, or platform level. A midrail made from 2 inch by 4-inch lumber or metal handrail material must be located at the midpoint between the top rail and the ground, floor, or platform level. A toe plate must be used on all barricades for floor holes, floor openings or wall openings. It shall be made from 1 inch by 4 inch or 2 inch by 4-inch lumber and shall be installed to prevent tools or material from falling to the lower level. Vertical support posts must be 2 inch by 4-inch lumber or 1½-inch metal handrail material (or larger) and located at distances not to exceed 8 feet.

### **5.4.3 Erection of Barricades**

- The Amsys Energy or Subcontractor Field Supervisor is responsible for the erection of barricades around hazard areas. Personnel working inside a barricade are responsible for maintaining the barricade.
- All barricades should be 42 inches in height. Barricade tape should be tied to vertical support posts and kept secure to prevent from collapsing/hanging onto the ground.
- Barricades must be complete. The hazard area shall be entirely isolated. A permanent structure that prevents entry into the hazard area may be used as part of the barricade. The barricaded area shall be of enough size to afford adequate protection.
- Barricades should not block emergency equipment, such as fire extinguishers, safety showers, power panels, etc.
- Personnel access gates or temporary material gates must remain closed when personnel or material are not passing through. These gates shall automatically default to a closed position.

### **5.4.4 Road Barricading**

Barricades across or next to a roadway shall be protective barricades. These barricades shall meet the following standards:

- Wooden barricades with appropriate signs or equivalent flashing lights are erected and in good working order.
- All barricade systems installed in public and/or private roadways shall be documented in a written traffic control plan, communicated prior to installation with the appropriate roadway authority, and approved as necessary.
- Appropriate amber flashing lights shall be attached to all barricades in place after dark to alert vehicle traffic of their presence.
- Written traffic control plans must be available at each work site. All affected employees must be adequately trained on the approved written traffic control plan for that work area.

## 5.5 WORK ZONE SAFETY

These requirements are intended only for short-term work on urban roads.

### 5.5.1 Temporary Work Zone Component Areas

A temporary traffic control work zone includes the entire section of roadway from the first advance warning sign through the last traffic control device, where traffic returns to its normal path and conditions. A well-designed work zone contains six distinct component areas:

- Advance Warning Area
- Approach Area
- Transition Area
- Longitudinal Buffer Area Work Area
- Work Area
- Termination Area

Physical space permitting, each component area should be present in some form in most work zones. Two or more of the component areas may be combined in situations where traffic volume, speed, and visibility do not permit the use of all the above individually. For example, a longitudinal buffer area (LBA) is not possible in a mobile work operation nor required where Traffic Control Persons are used, and a termination area is generally not required in low speed urban situations.

In laying out a work zone, attention must be given to provisions for the safe access to and egress from the work area for work vehicles.

The six key component areas are described below in the order that drivers encounter them:

1. **Advance Warning Area** – The space between the warning signs and transition area; tells motorist what to expect.
2. **Approach Area** – Informs drivers what action to take.
3. **Transition Area** – The space between the advanced warning area and buffer space; allows motorists to move out of normal traffic path.
4. **Longitudinal Buffer Area** – The space between the transition area and the work area; provides an additional margin of safety for motorists and workers. A longitudinal buffer area or a buffer vehicle is not required where traffic is controlled by means of traffic control persons, remote control devices, or portable traffic controls signals or temporary traffic signals.
5. **Work Area** – The work area is where the work takes place. It is set-aside for workers,

equipment, and material storage.

6. **Termination Area** – The space beyond the work area that transitions the motorist to normal driving conditions.

### **5.5.2 Short Duration Work**

Short duration work refers to stationary maintenance, construction, or utility activities which require a separate workspace that is continuously occupied by workers and/or equipment for more than 30 minutes and less than one 24-hour period.

### **5.5.3 Lighting of Work Area**

Regulations prescribed under OSHA require workplace lighting to be adequate. This lighting must not interfere with motorists' ability to navigate the work zone.

### **5.5.4 Roadway Lighting Through a Work Zone**

Illumination of the driver's path through a construction work zone may assist the driver in making timely decisions, partially compensate for an undesirable alignment, or lessen the visual impact of an illuminated work area on the driver.

### **5.5.5 Preparation Before Beginning Work**

The necessary approvals and/or permits shall be obtained prior to the start of work requiring the establishment of a work zone. Preliminary tasks to be completed before beginning work on the road include:

- Perform the initial work site evaluation.
- Determine the category and duration of the work to be undertaken.
- When feasible, select hours of work outside of peak traffic volume periods.
- For short duration work, determine the posted speed limit and hourly and daily traffic volumes in order to establish the signing and channelization requirements for the worksite (a three-minute count of traffic at the site multiplied by 300 will give a workable estimate of the daily volume). The purpose of this brief count is to determine whether the road is a low volume or high-volume road. Normally, roadwork is not done in peak traffic periods, and hence it is appropriate to take the count in off-peak periods. If roadwork must be done in peak traffic periods, the traffic count should be made in the peak period.
- Prepare a traffic control plan in compliance with regulatory requirements prescribed under the appropriate traffic control documents in the jurisdiction of the project, in detail appropriate to the complexity of the work project. Ensure all responsible parties understand the plan before the site is occupied. Any changes in the traffic control plan should be approved by an authorized individual/position.

- Notify the police, fire department, ambulance services, transit authorities, and the appropriate road authority, if required, and any other agencies that may be affected by the maintenance or construction activities.

***NOTE:** All employees entering or engaged in work activities within a "Work Area" must wear a high visibility reflective vest that meets code requirements.*

## **5.6 ENERGY ISOLATION (LOCKOUT/TAGOUT)**

### **5.6.1 Purpose**

Lockout and tagout ensures that all employees are protected from the unexpected activation of mechanical and/or electrical equipment during maintenance, repairing, cleaning, servicing, or adjusting of machinery, or equipment. It also assures that all employees are protected against the release of residual (stored) energy in machines. This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energizing or start-up of the machine or equipment or release of stored energy could cause injury.

**Who:** 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 servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

### **5.6.2 Definitions**

**Authorized Employee:** An employee who locks or tags machines or equipment in order to perform servicing or maintenance.

**Affected Employee:** An employee who is required to use machines or equipment on which servicing is performed under the lockout and tagout standard or who performs other job responsibilities in an area where such servicing is performed.

**Lockout:** The practice of using keyed or combination security devices ("locks") to prevent the unwanted activation of mechanical or electrical equipment.

#### **Tagout:**

- The practice of using tags in conjunction with locks to increase the visibility and awareness that equipment is not to be energized or activated until such devices are removed.
- Tagout devices will be of the non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds.

**Activations/ Energization:** Energy that sets machinery into motion by starting, switching, pushing, moving, or otherwise engaging power sources for such equipment. Completing a circuit that provides a flow of electricity that is the main or secondary power source for machinery/ equipment.

**Energy Control Procedures:** Use of lock out/tag out equipment to ensure safe work practices.

**Hazardous Motion and Energy:** Hazardous motion may result even after power sources are disconnected. Examples are coiled springs, raised hydraulic equipment, and any source energy (e.g., electricity, pressurized steam) that may cause injury. Hazards may be caused by equipment under mechanical stress or gravity that may abruptly release and cause injury.

### **5.6.3 Contractor Requirements for Safety Tagging/Lockout**

It is the policy of Amsys Energy LLC that any individual engaged in maintaining, repairing, cleaning, servicing, or adjusting machinery, or equipment on Amsys Energy LLC property will abide by the procedures outlined in this document and specific procedures outlined in our injury prevention program. These procedures are designed to meet or exceed applicable OSHA standards for safe work practices.

- As a part of this policy a Job Hazard Analysis (JHA) will be conducted for all major maintenance and repair operations within the shop. JHA will be used to develop Standard Operating Procedures (SOPS) in order to help assure safe work practices.
- Lockout is a first means of protection; warning tags only supplement the use of locks. Tags alone may be used only when the application of a lock is not feasible and with approval of the appropriate supervisor.
- Ensure that trained, skilled, and qualified personnel perform tagging and lockout.
- Verify that all safety precautions and adequate protections are in place to perform the work tasks safely.
- Re-establish system configuration and remove lockout/tagout devices following completion of the work protected by lockout/tag out.

### **5.6.4 Responsibilities**

#### **SAFETY LEADERSHIP TEAM**

- Conduct a Job Safety Analysis (JSA) for repair and maintenance processes.
- Provide annual training to employees affected by lockout and tagout procedures
- Inspect energy control procedures and practices at least annually to ensure that general and specific lockout and tagout procedures are being followed.
- Inspections should be carried out by persons OTHER than those employees directly utilizing energy control procedures.
- Inspections will include a review between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
- Certify that periodic inspections have been performed. (see RECORDKEEPING and Appendix A, LOCK OUT/TAG OUT INSPECTION FORM)
- Maintain a file of equipment, machinery, and operations that require the use of lockout/tagout procedures. The file will include the location, description, power source, and primary hazards of equipment that is used and maintained on site.

## **SUPERVISORS**

- Ensure that each employee and contractor engaging in work requiring locking/tagging out of energy sources understands and adheres to adopted procedures.
- Assure that employees have received training in energy control procedures prior to operating the machinery or equipment.
- Provide and maintain the necessary equipment and resources, including injury prevention signs, tags, padlocks, and seals.

## **EMPLOYEES**

Adhere to specific procedures as outlined in this document for all tasks that require the use of lockout and tagout procedures.

### **5.6.5 General Requirements**

Tagging or lockout is required for hazardous energy in the presence of an energy source or a future potential source while working on the equipment.

Locks are the preferred means of isolation. If possible, isolation points shall be locked safely without causing interference with adjacent equipment (e.g., multiple breakers in a distribution panel). Disconnecting a cable and tagging is acceptable as long as exposed energized cables or terminals are properly insulated/isolated. Where operational procedures prohibit locks, or in situations where no physical means of locking devices may exist, tagging only is acceptable.

The secure placement of a tag or lock on an energy-isolating device, disconnect switch, or circuit breaker indicates that the equipment or system being controlled may not be operated until the lockout/tag out device is removed. Push buttons, selector switches, and other control circuit devices are not energy isolating devices.

### **5.6.6 Construction in an Energized Environment Excluding EME/RF**

Contractor shall assess the equipment or system boundary and identify locations of the recommended protective measures, safety tagging, and lockouts. Hot work is to be discouraged in all cases. Special attention shall be given to uninterruptible power supply (UPS) backup systems, as they may energize when the normal power source is cut off

Amsys Energy Field Management shall implement the specified protective measures, hang safety tags, and place locks, as required. The Field Supervisor shall independently verify that all tags/locks are in place and the boundary is acceptable. All other subcontractors must independently verify the safety tags, energy status, and install their required tags and locks.

### **5.6.7 Specific Procedures**

#### **PREPARATION FOR LOCKOUT AND TAGOUT**

Make a survey to locate and identify all isolating devices to be certain which switch(s),

valve(s), or other energy source (electrical, mechanical, hydraulic, Thermal, and chemical) may be present with a single piece of equipment.

### **SEQUENCE OF LOCKOUT OR TAGOUT SYSTEM PROCEDURE**

- Notify affected employees that a lock out or tag out system is going to be utilized and the reason.
- The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.
- If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.)
- Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
- Lock out/tag out the energy isolating devices with assigned individual lock(s) or tag(s).
- After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.
- CAUTION: Return operating control(s) to neutral or off position after the test.
- The equipment is now locked out or tagged out.

### **RESTORING MACHINES OR EQUIPMENT TO NORMAL OPERATIONS**

- After the servicing and/or maintenance is complete and equipment is ready for normal production operations check the area around the machines or equipment to ensure that no one is exposed.
- After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

### **PROCEDURE INVOLVING MORE THAN ONE PERSON**

In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his/her own personal lockout and tagout device on the energy isolating device(s). When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment and the key placed in a lockout box or cabinet, which allows the use of multiple locks. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet.

### **TEMPORARY REMOVAL OF LOCKOUT AND TAGOUT DEVICES**

- In situations where lockout and tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions will be followed:
- Remove non-essential items and ensure that machine or equipment components are operationally intact.

- Notify affected employees that lockout and tagout devices have been removed and ensure that all employees have been safely positioned or removed from the area
- Have employees who applied the lockout and tagout devices remove the lockout and tagout devices.
- Energize and proceed with testing or positioning.
- De-energize all systems and reapply energy control measures in accordance with sequence of these procedures.

## **MAINTENANCE REQUIRING UNDISRUPTED ENERGY SUPPLY**

- Where maintenance, repairing, cleaning, servicing, adjusting, or setting up operations cannot be accomplished with the prime mover or energy source disconnected, such operations may only be performed under the following conditions:
  - The operating station (e.g. external control panel) where the machine may be activated must always be under the control of a qualified operator.
  - All participants must be in the clean view of the operator or in communication with each other.
  - All participants must be beyond the reach of machine elements which may be a present hazard.
  - Where machine configuration or size requires that the operator leave the control station to install tools, and where there are machine elements, which may move rapidly, if activated, such elements must be separately locked out.
  - During repair procedures where mechanical components are being adjusted or replaced, the machine shall be de-energized or disconnected from its power source.

### **5.6.8 Emergency Procedures**

If an emergency change or closure is issued, all work within the scope shall be discontinued until the System/Component Tagging System can be restored or changed by the closure.

The Amsys Energy Field Supervisor shall remove all tags and locks and ensure that special protective measures have been restored.

### **5.6.9 Shift or personnel changes**

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and incoming employees, to minimize exposure to hazards from the unexpected energization or startup of the machine or equipment , or the release of stored energy.

Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

### **5.6.10 Employee Training**

- Designated employees will receive annual lock out/tag out training outlined in 29CFR [Specifically 1910.147 (c)(7)(i)(ii), & (iii)]. During this training employees should be made aware of lockout and tagout

procedures as well as how and why they are being used.

- Employees need to be trained to ensure that they know, understand, and follow the applicable provisions of the hazardous energy control procedures. The training must cover at least three areas: aspects of the employer's energy control program of the OSHA standards related to lockout and tagout.

### **5.6.11 Recordkeeping**

#### **INSPECTION RECORDS**

- Maintain inspection records.
- Human services will complete and maintain all LOCKOUT AND TAGOUT INSPECTION FORMS.

#### **TRAINING RECORDS**

- Training records will be maintained by [position]. Records will include an outline of topics covered and a sign in sheet of those employees attending.
- Resources: Free lockout and tagout tutorial: <https://www.osha.gov/dts/osta/lototraining/tutorial/tu-overvw.html>

### **5.6.12 Routine Work Completion**

The Amsys Energy Field Supervisor shall verify that planned work is complete, the system configuration is safe to be energized, and all tags under his jurisdiction have been removed. All tags shall be destroyed upon removal.

### **5.6.13 Danger - Do Not Operate/Do Not Remove Tag and Caution - Restricted Operation Tag**

The following tags are examples. Other tags that provide the same information may be used upon concurrence by Contractor. Revised tags shall be submitted as a part of the plan.

“Danger – Do Not Operate” and “Caution – Restricted” tags shall not be hung on the same component.

“Caution – Restricted Operation” tags shall not be used for personal protection when isolating against a hazardous energy source.

**Figure 5-1**  
**DANGER – DO NOT OPERATE/DO NOT REMOVE TAG**

SYS. \_\_\_\_\_ TAG NO. \_\_\_\_\_

**DANGER**

**DO NOT OPERATE**

EQUIPMENT: \_\_\_\_\_

\_\_\_\_\_

POSITION: \_\_\_\_\_

PERMIT REQUESTOR (PR): \_\_\_\_\_

ENTITY: \_\_\_\_\_

ISSUING TAGGING AUTHORITY: \_\_\_\_\_

DATE: \_\_\_\_\_

REMARKS: \_\_\_\_\_

**DANGER**

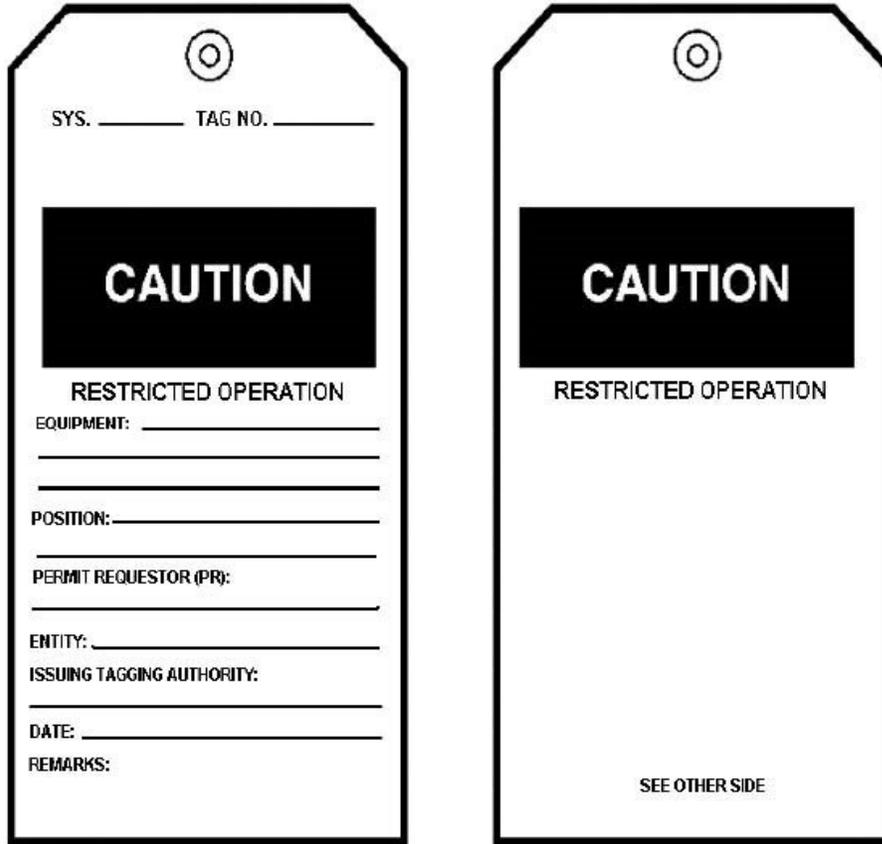
**DO NOT OPERATE**

DO NOT REMOVE COMPONENT

DISCIPLINARY ACTION WILL BE TAKEN IF THESE ORDERS ARE DISREGARDED.

SEE OTHER SIDE

**Figure 5-2**  
**CAUTION – RESTRICTED OPERATION TAG**



**APPENDIX A - LOCK OUT/TAG OUT INSPECTION FORM**

**LOCK OUT/TAG OUT INSPECTION FORM**

- 1 Inspection Date: \_\_\_\_\_
- 2 Inspector: \_\_\_\_\_
- 3 Employee(s) \_\_\_\_\_
- 4 Machine/ equipment on which the energy control procedure was being utilized:  
\_\_\_\_\_
- 5 Does employee have or have access to adequate lock out/tag out devices? Y/ N
- 6 Has employee tested the effectiveness of his/her lock out/tag out devices? Y/ N
- 7 Has employee received lockout and tagout training in the last year? Y/ N
- 8 If this is an outside contractor, has a supervisor informed him/her of the necessity of adhering to these procedures? Y/ N
- 9 Have all procedures been followed? Y/ N
- 10 Were hangouts legible and clearly displayed? Y/ N
- 11 Comments/Observations: \_\_\_\_\_  
\_\_\_\_\_

## 5.7 WORKING IN CONFINED SPACES

The purpose of Amsys Energy, LLC Confined Space Program is to set procedures that will ensure workers safe entry into confined spaces and permit- required confined spaces to perform routine tasks associated with their employment. This procedure is designed to provide the minimum safety requirements in accordance with the Occupational Safety and Health Administration's (OSHA) Confined Space Standard, 1910.146.

### 5.7.1 Definition

A confined space is defined as any location that has limited openings for entry and egress, is not intended for continuous employee occupancy, and is so enclosed that natural ventilation may not reduce air contaminants to levels below the threshold limit value (TLV). Examples of confined spaces include manholes, stacks, pipes, storage tanks, trailers, tank cars, pits, sumps, hoppers, and bins. Entry into confined spaces without proper precautions could result in injury, impairment, or death.

A "confined space" is a space that has any of the following characteristics:

- Has limited or restricted entry and exit.
- May contain or have the potential for a hazardous atmosphere.
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
- Is large enough and so configured that an employee's body can enter and perform assigned work, but is not designed for continuous employee occupancy?
- Contains a material with the potential to engulf someone who enters the space. Examples of confined or enclosed spaces include, but are not limited to:
  - Sewers, pipelines, septic tanks;
  - Vessels, bins, ventilation or exhaust ducts, underground utility vaults, and manholes;
  - Vaults, tunnels, and open top spaces more than 4 feet deep;
  - Water towers;
  - Controlled Environment Vaults (CEV), depending on configuration. Confined spaces will become unsafe because of:
    - Possible physical hazards;
    - The possibility of liquids, gases, or solids being admitted during occupancy;
    - Existing or potential hazards in the confined space, such as an oxygen deficient or enriched atmosphere, a flammable/explosive atmosphere, or a toxic atmosphere.
    - an atmosphere that is flammable or explosive;
    - lack of sufficient oxygen to support life;
    - contact with or inhalation of toxic materials; or
    - general safety or work area hazards such as steam or high-pressure materials.

### 5.7.2 Assignment of Responsibility

#### Employer

In administering this Confined Space Program, Amsys Energy will:

1. Monitor the effectiveness of the program.
2. Provide atmospheric testing and equipment as needed.
3. Provide personal protective equipment as needed.
4. Provide training to affected employees and supervisors.

5. Provide technical assistance as needed.
6. Preview and update the program on at least an annual basis or as needed.

### **Program Manager**

Responsible Person is responsible for managing the Confined Space Program, and shall:

1. Ensure that a list of confined spaces at all Amsys Energy worksites is maintained.
2. Ensure that canceled permits are reviewed for lessons learned.
3. Ensure training of personnel is conducted and documented.
4. Coordinate with outside responders.
5. Ensure that equipment is in compliance with standards.
6. Ensure that the Responsible Person in charge of confined space work shall:
  - a. Ensure requirements for entry have been completed before entry is authorized.
  - b. Ensure confined space monitoring is performed by personnel qualified and trained in confined space entry procedures.
  - c. Ensure a list of monitoring equipment and personnel qualified to operate the equipment is maintained by the Safety and Occupational Health Office.
  - d. Ensure that the rescue team has simulated a rescue in a confined space within the past twelve (12) months.
  - e. Know the hazards that may be faced during entry, including the mode (how the contaminant gets into the body), signs or symptoms, and consequences of exposure.
  - f. Fill out a permit.
  - g. Determine the entry requirements.
  - h. Require a permit review and signature from the authorized Entry Supervisor.
  - i. Notify all involved employees of the permit requirements.
  - j. Post the permit in a conspicuous location near the job.
  - k. Renew the permit or have it reissued as needed (a new permit is required every shift).
  - l. Determine the number of Attendants required to perform the work.
  - m. Ensure all Attendant(s) know how to communicate with the entrants and how to obtain assistance.
  - n. Post any required barriers and signs.
  - o. Remain alert to changing conditions that might affect the conditions of the permits (i.e., require additional atmospheric monitoring or changes in personal protective equipment).
  - p. Change and reissue the permit or issue a new permit as necessary.
  - q. Ensure periodic atmospheric monitoring is done according to permit requirements.
  - r. Ensure that personnel doing the work and all support personnel adhere to permit requirements.
  - s. Ensure the permit is canceled when the work is done.
  - t. Ensure the confined space is safely closed and all workers are cleared from the area.

### **Entry Supervisors**

Responsible Person(s) shall serve as the Entry Supervisor(s) and shall be qualified and authorized to approve confined space entry permits. The Entry Supervisor(s) shall be responsible for:

7. Determining if conditions are acceptable for entry.
8. Authorizing entry and overseeing entry operations.
9. Terminating entry procedures as required.
10. Serving as an Attendant, as long as the person is trained and equipped appropriately for that role.
11. Ensuring measures are in place to keep unauthorized personnel clear of the area.
12. Checking the work at least twice a shift to verify and document permit requirements are being observed (more frequent checks shall be made if operations or conditions are anticipated that could

- affect permit requirements).
13. Ensuring that necessary information on chemical hazards is kept at the worksite for the employees or rescue team.
  14. Ensuring a rescue team is available and instructed in their rescue duties (i.e., an onsite team or a prearranged outside rescue service).
  15. Ensuring the rescue team members have current certification in first aid and cardiopulmonary resuscitation (CPR).

### **Attendants**

Responsible Person(s) shall function as an Attendant(s) and shall be stationed outside of the confined workspace. The Attendant(s) shall:

16. Be knowledgeable of and be able to recognize potential confined space hazards.
17. Maintain a sign-in/sign-out log with a count of all persons in the confined space, and ensure all entrants sign in and out.
18. Monitor surrounding activities to ensure the safety of personnel.
19. Maintain effective and continuous communication with personnel during confined space entry, work, and exit.
20. Order personnel to evacuate the confined space if he/she:
  - a. observes a condition which is not allowed on the entry permit;
  - b. notices the entrants acting strangely, possibly as a result of exposure to hazardous substances;
  - c. notices a situation outside the confined space which could endanger personnel;
  - d. notices a hazard within the confined space that has not been previously recognized or taken into consideration;
  - e. must leave his/her workstation; or
  - f. must focus attention on the rescue of personnel in some other confined space that he/she is monitoring.
21. Immediately summon the Rescue Team if crew rescue becomes necessary.
22. Keep unauthorized persons out of the confined space, order them out, or notify authorized personnel of an unauthorized entry.

### **Rescue Team**

The Rescue Team members shall:

23. Complete a training drill using mannequins or personnel in a simulation of the confined space prior to the issuance of an entry permit for any confined space and at least annually thereafter.
24. Respond immediately to rescue calls from the Attendant or any other person recognizing a need for rescue from the confined space.
25. In addition to emergency response training, receive the same training as that required of the authorized entrants.
26. Have current certification in first aid and CPR.

### **Entrants/Affected Employees**

Employees who are granted permission to enter a confined space shall:

27. Read and observe the entry permit requirements.
28. Remain alert to the hazards that could be encountered while in the confined space.
29. Properly use the personal protective equipment that is required by the permit.
30. Immediately exit the confined space when:

- a. they are ordered to do so by an authorized person;
  - b. they notice or recognize signs or symptoms of exposure;
  - c. a prohibited condition exists; or
  - d. the automatic alarm system sounds.
31. Alert Attendant(s) when a prohibited condition exists and/or when warning signs or symptoms of exposure exist.

### **5.7.3 Hazard Identification**

#### **A. Survey**

Responsible Person shall ensure a survey of the worksite is conducted to identify confined spaces. This survey can be partially completed from initial and continuing site characterizations, as well as other available data (i.e., blueprints and job safety analysis). The purpose of the survey is to develop an inventory of those locations and/or equipment at Amsys Energy that meet the definition of a confined space. This information shall be communicated to personnel, and appropriate confined space procedures shall be followed prior to entry. The initial surveys shall include air monitoring to determine the air quality in the confined spaces. The potential for the following situations shall be evaluated by Responsible Person:

1. flammable or explosive potential;
2. oxygen deficiency; and
3. presence of toxic and corrosive material.

#### **B. Hazard Reevaluation**

The Responsible Person shall identify and reevaluate hazards based on possible changes in activities or other physical or environmental conditions that could adversely affect work. A master inventory of confined spaces shall be maintained. Any change in designation of a confined space will be routed to all affected personnel by a Responsible Person.

Potential on the site related to their scope of work that may expose employees to confined space hazards. A sign stating, “Confined Space Permit and Air Monitoring Required Prior to Entry” (or similar) shall be posted at each entry point of all confined spaces that employees are required to enter.

### **5.7.4 Preventing Unauthorized Entry**

The following procedures shall be implemented to inform all employees of the existence, location, and danger posed by confined spaces:

- Warning signs shall be used to inform employees of the existence of a confined space.
- JSAs shall be used to plan and communicate the hazards and control measures to be taken while working in any confined space.
- A completed and approved confined space entry permit shall be required prior to entering any confined space.

- Training and toolbox talks shall be used to inform and train employees about the dangers and procedures associated with confined space work.

### **5.7.5 Pre-Entry Evaluation**

A hazard assessment shall be completed by Responsible Person(s) prior to any entry into a confined space. The hazard assessment should identify:

1. the sequence of work to be performed in the confined space;
2. the specific hazards known or anticipated; and
3. the control measures to be implemented to eliminate or reduce each of the hazards to an acceptable level.

No entry shall be permitted until the hazard assessment has been reviewed and discussed by all persons engaged in the activity. Personnel who are to enter confined spaces shall be informed of known or potential hazards associated with said confined spaces.

### **5.7.6 Entry Procedure**

When entry into a confined space is necessary, either the Entry Supervisor or Responsible Person may initiate entry procedures, including the completion of a confined space entry permit. Entry into a confined space shall follow the standard entry procedure below.

#### **A. Prior to Entry**

The entire confined space entry permit shall be completed before a standard entry. Entry shall be allowed only when all requirements of the permit are met, and it is reviewed and signed by an Entry Supervisor. The following conditions must be met prior to standard entry:

1. Affected personnel shall be trained to establish proficiency in the duties that will be performed within the confined space.
2. The internal atmosphere within the confined space shall be tested by a Responsible Person with a calibrated, direct-reading instrument.
3. Personnel shall be provided with necessary PPE as determined by the Entry Supervisor.
4. Atmospheric monitoring shall take place during the entry. If a hazardous atmosphere is detected during entry:
  - a. personnel within the confined space shall be evacuated by the Attendant(s) or Entry Supervisor until the space can be evaluated by Responsible Person to determine how the hazardous atmosphere developed; and
  - b. controls shall be put in place to protect employees before reentry.

#### **B. Opening a Confined Space**

Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent anyone from falling through the opening. This barrier or cover shall protect each employee working in the space from foreign objects entering the

space. If it is in a traffic area, adequate barriers shall be erected.

### C. Atmospheric Testing

Atmospheric test data is required prior to entry into a confined space. Atmospheric testing is required for two distinct purposes: (1) evaluation of the hazards of the permit space, and (2) verification that acceptable conditions exist for entry into that space. If a person must go into the space to obtain the needed data, then Standard Confined Space Entry Procedures shall be followed. Before entry into a confined space, Responsible Person shall conduct testing for hazardous atmospheres. The internal atmosphere shall be tested with a calibrated, direct-reading instrument for oxygen, flammable gases and vapors, and potential toxic air contaminants, in that order.

Testing equipment used in specialty areas shall be listed or approved for use in such areas by a Responsible Person. All testing equipment shall be approved by a nationally recognized laboratory, such as Underwriters Laboratories or Factory Mutual Systems.

#### 1. Evaluation Testing

The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity. The analysis shall identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed, and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data and development of the entry procedure should involve a technically qualified professional (i.e., consultant, certified industrial hygienist, registered safety engineer, or certified safety professional).

#### 2. Verification Testing

A confined space that may contain a hazardous atmosphere shall be tested for residues of all identified or suspected contaminants. The evaluation testing should be conducted with specified equipment to determine that residual concentrations at the time of testing and entry are within acceptable limits. Results of testing shall be recorded by the person performing the tests on the permit. The atmosphere shall be periodically retested (frequency to be determined by Responsible Person) to verify that atmospheric conditions remain within acceptable entry parameters.

#### 3. Acceptable Limits

The atmosphere of the confined spaces shall be within acceptable limits when the following conditions are maintained:

- a. oxygen: 19.5 percent to 23.5 percent;
- b. flammability: less than 10 percent of the Lower Flammable Limit (LFL); and
- c. toxicity: less than recognized American Conference of Governmental Industrial Hygienists (ACGIH) exposure limits or other published exposure levels [i.e., OSHA Permissible Exposure Limits (PELs) or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs)].

### D. Isolation and Lockout/Tagout Safeguards

All energy sources that are potentially hazardous to confined space entrants shall be secured, relieved, disconnected, and/or restrained before personnel are permitted to enter the confined space. Equipment systems or processes shall be locked out and/or tagged out as required by the Company Name Lockout/Tagout Program [which complies with OSHA's 29 CFR 1910-147 and American National Standards Institute (ANSI)

Z244.1-1982, Lockout/Tagout of Energy Sources] prior to permitting entry into the confined space. In confined spaces where complete isolation is not possible, Responsible Person shall evaluate the situation and make provisions for as rigorous an isolation as is practical. Special precautions shall be taken when entering double-walled, jacketed, or internally insulated confined spaces that may discharge hazardous material through the vessel's internal wall.

Where there is a need to test, position, or activate equipment by temporarily removing the lock or tag or both, a procedure shall be developed and implemented to control hazards to the occupants. Any removal of locks, tags, or other protective measures shall be done in accordance with the Company Name Lockout/Tagout Program.

#### E. Ingress/Egress Safeguards

Means for safe entry and exit shall be provided for confined spaces. Each entry and exit points shall be evaluated by a Responsible Person to determine the most effective methods and equipment that will enable employees to safely enter and exit the confined space.

Appropriate retrieval equipment or methods shall be used whenever a person enters a confined space. Use of retrieval equipment may be waived by the Responsible Person(s) if use of the equipment increases the overall risks of entry or does not contribute to the rescue. A mechanical device shall be available to retrieve personnel from vertical confined spaces greater than five (5) feet in depth.

#### F. Warning Signs and Symbols

All confined spaces that could be inadvertently entered shall have signs identifying them as confined spaces. Signs shall be maintained in a legible condition. The signs shall contain a warning that a permit is required before entry. Accesses to all confined spaces shall be prominently marked.

### **5.7.7 Written Entry Permit**

The Confined Space Entry Permit is the most essential tool for assuring safety during entry in confined spaces with known hazards, or with unknown or potentially hazardous atmospheres. The entry permit process guides the supervisor and workers through a systematic evaluation of the space to be entered. The permit should be used to establish appropriate conditions. Before each entry into a confined space, an entry permit will be completed by the Responsible Person. The Responsible Person will then communicate the contents of the permit to all employees involved in the operation and post the permit conspicuously near the work location. A standard entry permit shall be used for all entries.

#### **Key Elements of Entry Permits**

A standard entry permit shall contain the following items:

1. Space to be entered.

2. Purpose of entry.
3. Date and authorized duration of the entry permit.
4. Name of authorized entrants within the permit space.
5. Means of identifying authorized entrants inside the permit space (i.e., rosters or tracking systems).
6. Name(s) of personnel serving as Attendant(s) for the permit duration.
7. Name of individual serving as Entry Supervisor, with a space for the signature or initials of the Entry Supervisor who originally authorized the entry.
8. Hazards of the permit space to be entered.
9. Measures used to isolate the permit space and to eliminate or control permit space hazards before entry (i.e., lockout/tagout of equipment and procedures for purging, ventilating, and flushing permit spaces).
10. Acceptable entry conditions.
11. Results of initial and periodic tests performed, accompanied by the names or initials of the testers and the date(s) when the tests were performed.
12. Rescue and emergency services that can be summoned, and the means of contacting those services (i.e., equipment to use, phone numbers to call).
13. Communication procedures used by authorized entrants and Attendant(s) to maintain contact during the entry.
14. Equipment to be provided for compliance with this Confined Space Program (i.e., PPE, testing, communications, alarm systems, and rescue).
15. Other information necessary for the circumstances of the particular confined space that will help ensure employee safety.
16. Additional permits, such as for hot work, that have been issued to authorize work on the permit space.

### **Permit Scope and Duration**

A permit is only valid for one shift. For a permit to be renewed, the following conditions shall be met before each reentry into the confined space:

1. Atmospheric testing shall be conducted, and the results should be within acceptable limits. If atmospheric test results are not within acceptable limits, precautions to protect entrants against the hazards should be addressed on the permit and should be in place.
2. Responsible Person shall verify that all precautions and other measures called for on the permit are still in effect.
3. Only operations or work originally approved on the permit shall be conducted in the confined space.

A new permit shall be issued, or the original permit will be reissued if possible, whenever changing work conditions or work activities introduce new hazards into the confined space. Responsible Person shall retain each canceled entry permit for at least one (1) year to facilitate the review of the Confined Space Entry Program. Any problems encountered during an entry operation shall be noted on the respective permit(s) so that appropriate revisions to the confined space permit program can be made.

### **5.7.8 Hazard Controls**

Hazard controls shall be instituted to address changes in the work processes and/or working environment. Hazard

controls must be able to either control the health hazards by eliminating the responsible agents, reduce health hazards below harmful levels, or prevent the contaminants from coming into contact with the workers.

The following order of precedence shall be followed in reducing confined space risks.

### **Engineering Controls**

Engineering controls are those controls that eliminate or reduce the hazard through implementation of sound engineering practices.

Ventilation is one of the most common engineering controls used in confined spaces. When ventilation is used to remove atmospheric contaminants from a confined space, the space shall be ventilated until the atmosphere is within the acceptable ranges.

Ventilation shall be maintained during the occupancy if there is a potential for the atmospheric conditions to move out of the acceptable range. When ventilation is not possible or feasible, alternate protective measures or methods to remove air contaminants and protect occupants shall be determined by the Responsible Person prior to authorizing entry.

When conditions necessitate and can accommodate continuous forced air ventilation, the following precautions shall be followed:

- a. Employees shall not enter the space until the forced air ventilation has eliminated any hazardous atmosphere.
- b. Forced air ventilation shall be directed to ventilate the immediate areas where an employee is or will be present within the space.
- c. Continuous ventilation shall be maintained until all employees have left the space.
- d. Air supply or forced air ventilation shall originate from a clean source.

### **Work Practice (Administrative) Controls**

Work practice (administrative) controls are those controls which eliminate or reduce the hazard through changes in the work practices (i.e., rotating workers, reducing the amount of worker exposure, and housekeeping).

### **Personal Protective Equipment (PPE)**

If the hazard cannot be eliminated or reduced to a safe level through engineering and/or work practice controls, PPE should be used. Responsible Person(s) shall determine the appropriate PPE needed by all personnel entering the confined space, including rescue teams. PPE that meets the specifications of applicable standards shall be selected in accordance with the requirements of the job to be performed.

## **5.7.9 Confined Space Entry Procedures**

When entry into a confined space is necessary, either the Entry Supervisor or Responsible Person may initiate entry procedures, including the completion of a confined space entry permit. Entry into a confined space shall follow the standard entry procedure below.

### **Prior to Entry**

The entire confined space entry permit shall be completed before a standard entry. Entry shall be allowed only when all requirements of the permit are met, and it is reviewed and signed by an Entry Supervisor. The following conditions must be met prior to standard entry:

1. Affected personnel shall be trained to establish proficiency in the duties that will be performed within the confined space.
2. The internal atmosphere within the confined space shall be tested by a Responsible Person with a calibrated, direct-reading instrument.
3. Personnel shall be provided with necessary PPE as determined by the Entry Supervisor.
4. Atmospheric monitoring shall take place during the entry. If a hazardous atmosphere is detected during entry:
  - a. personnel within the confined space shall be evacuated by the Attendant(s) or Entry Supervisor until the space can be evaluated by Responsible Person to determine how the hazardous atmosphere developed; and
  - b. controls shall be put in place to protect employees before reentry.

### **Opening a Confined Space**

Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent anyone from falling through the opening. This barrier or cover shall protect each employee working in the space from foreign objects entering the space. If it is in a traffic area, adequate barriers shall be erected.

### **Atmospheric Testing**

Atmospheric test data is required prior to entry into a confined space. Atmospheric testing is required for two distinct purposes: (1) evaluation of the hazards of the permit space, and (2) verification that acceptable conditions exist for entry into that space. If a person must go into the space to obtain the needed data, then Standard Confined Space Entry Procedures shall be followed. Before entry into a confined space, Responsible Person shall conduct testing for hazardous atmospheres. The internal atmosphere shall be tested with a calibrated, direct-reading instrument for oxygen, flammable gases and vapors, and potential toxic air contaminants, in that order.

Testing equipment used in specialty areas shall be listed or approved for use in such areas by a Responsible Person. All testing equipment shall be approved by a nationally recognized laboratory, such as Underwriters Laboratories or Factory Mutual Systems.

### **Evaluation Testing**

The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity. The analysis shall identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed, and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data and development of the entry procedure should involve a technically qualified professional (i.e., consultant, certified industrial hygienist, registered safety engineer, or certified safety professional).

## **Verification Testing**

A confined space that may contain a hazardous atmosphere shall be tested for residues of all identified or suspected contaminants. The evaluation testing should be conducted with specified equipment to determine that residual concentrations at the time of testing and entry are within acceptable limits. Results of testing shall be recorded by the person performing the tests on the permit. The atmosphere shall be periodically retested (frequency to be determined by Responsible Person) to verify that atmospheric conditions remain within acceptable entry parameters.

## **Acceptable Limits**

The atmosphere of the confined spaces shall be within acceptable limits when the following conditions are maintained:

- a. oxygen: 19.5 percent to 23.5 percent;
- b. flammability: less than 10 percent of the Lower Flammable Limit (LFL); and
- c. toxicity: less than recognized American Conference of Governmental Industrial Hygienists (ACGIH) exposure limits or other published exposure levels [i.e., OSHA Permissible Exposure Limits (PELs) or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs)].

## **Isolation and Lockout/Tagout Safeguards**

All energy sources that are potentially hazardous to confined space entrants shall be secured, relieved, disconnected, and/or restrained before personnel are permitted to enter the confined space. Equipment systems or processes shall be locked out and/or tagged out as required by the Company Name Lockout/Tagout Program [which complies with OSHA's 29 CFR 1910-147 and American National Standards Institute (ANSI) Z244.1-1982, Lockout/Tagout of Energy Sources] prior to permitting entry into the confined space. In confined spaces where complete isolation is not possible, Responsible Person shall evaluate the situation and make provisions for as rigorous an isolation as is practical. Special precautions shall be taken when entering double-walled, jacketed, or internally insulated confined spaces that may discharge hazardous material through the vessel's internal wall.

Where there is a need to test, position, or activate equipment by temporarily removing the lock or tag or both, a procedure shall be developed and implemented to control hazards to the occupants. Any removal of locks, tags, or other protective measures shall be done in accordance with the Company Name Lockout/Tagout Program.

## **Ingress/Egress Safeguards**

Means for safe entry and exit shall be provided for confined spaces. Each entry and exit points shall be evaluated by a Responsible Person to determine the most effective methods and equipment that will enable employees to safely enter and exit the confined space.

Appropriate retrieval equipment or methods shall be used whenever a person enters a confined space. Use of retrieval equipment may be waived by the Responsible Person(s) if use of the equipment increases the

overall risks of entry or does not contribute to the rescue. A mechanical device shall be available to retrieve personnel from vertical confined spaces greater than five (5) feet in depth.

### **Warning Signs and Symbols**

All confined spaces that could be inadvertently entered shall have signs identifying them as confined spaces. Signs shall be maintained in a legible condition. The signs shall contain a warning that a permit is required before entry. Accesses to all confined spaces shall be prominently marked.

### **5.7.10 Rescue Equipment**

The Amsys Energy Project Manager shall plan, prepare, and incorporate rescue provisions into the JSA and Confined Space Entry Permit for each confined space entry. The rescue equipment and provisions shall be commensurate to the hazards posed by the confined space (e.g., self-contained breathing apparatus, body harness with retrieval lines, tripod or rescue rigging). All personnel involved in the confined space task shall be informed of the rescue measures.

### **5.7.11 Emergency Response**

#### **Emergency Response Plan**

Responsible Person shall maintain a written plan of action that has provisions for conducting a timely rescue of individuals within a confined space, should an emergency arise. The written plan shall be kept onsite where the confined space work is being conducted. All affected personnel shall be trained on the Emergency Response Plan.

#### **Retrieval Systems and Methods of Non-Entry Rescue**

Retrieval systems shall be available and ready when an authorized person enters a permit space, unless such equipment increases the overall risk of entry, or the equipment would not contribute to the rescue of the entrant. Retrieval systems shall have a chest or full-body harness and a retrieval line attached at the center of the back near shoulder level or above the head. If harnesses are not feasible, or would create a greater hazard, wristlets may be used in lieu of the harness. The retrieval line shall be firmly fastened outside the space so that rescue can begin as soon as anyone is aware that retrieval is necessary. A mechanical device shall be available to retrieve personnel from vertical confined spaces more than five (5) feet deep.

### **5.7.12 Training Program**

Amsys Energy shall provide training so that all employees whose work is regulated by this Confined Space Program acquire the understanding, knowledge, and skills necessary for the safe performance of their duties in confined spaces.

#### **Training Frequency**

Responsible Person shall provide training to each affected employee:

1. before the employee is first assigned duties within a confined space;
2. before there is a change in assigned duties;
3. when there is a change in permit space operations that presents a hazard for which an employee has not been trained; and
4. when Amsys Energy has reason to believe that there are deviations from the confined space entry procedures required in this program, or that there are inadequacies in the employee's knowledge or use of these

procedures.

The training shall establish employee proficiency in the duties required in this program, and shall introduce new or revised procedures, as necessary, for compliance with this program.

### **General Training**

All employees who will enter confined spaces shall be trained in entry procedures. Personnel responsible for supervising, planning, entering, or participating in confined space entry and rescue shall be adequately trained in their functional duties prior to any confined space entry. Training shall include:

1. Explanation of the general hazards associated with confined spaces.
2. Discussion of specific confined space hazards associated with the facility, location, or operation.
3. Reason for, proper use, and limitations of personal protective equipment and other safety equipment required for entry into confined spaces.
4. Explanation of permits and other procedural requirements for conducting a confined space entry.
5. A clear understanding of what conditions would prohibit entry.
6. Procedures for responding to emergencies.
7. Duties and responsibilities of the confined space entry team.
8. Description of how to recognize symptoms of overexposure to probable air contaminants in themselves and co-workers, and method(s) for alerting the Attendant(s).

Refresher training shall be conducted as needed to maintain employee competence in entry procedures and precautions.

### **Specific Training**

1. Training for atmospheric monitoring personnel shall include proper use of monitoring instruments, including instruction on the following:
  - a. proper use of the equipment;
  - b. calibration of equipment;
  - c. sampling strategies and techniques; and
  - d. exposure limits (PELs, TLVs, LELs, UELs, etc.).
2. Training for Attendants shall include the following:
  - a. procedures for summoning rescue or other emergency services; and
  - b. proper utilization of equipment used for communicating with entry and emergency/rescue personnel.
3. Training for Emergency Response Personnel shall include:
  - a. rescue plan and procedures developed for each type of confined space that is anticipated to be encountered;
  - b. use of emergency rescue equipment;
  - c. first aid and CPR techniques; and
  - d. work location and confined space configuration to minimize response time.

### **Verification of Training**

Periodic assessment of the effectiveness of employee training shall be conducted by a Responsible Person. Training sessions shall be repeated as often as necessary to maintain an acceptable level of personnel competence.

## **5.8 MAINTAINING SAFE HOUSEKEEPING, WALKING AND WORKING SURFACES**

Good housekeeping is a fundamental and necessary activity required by every employee in order to maintain safety. Neat and clean work areas hold fewer hazards for all employees. Accidents and injuries can be avoided, and productivity improved, when good housekeeping is a daily occurrence. All supervisors are required to enforce and routinely monitor work areas.

### **5.8.1 General Requirements**

General housekeeping requirements include:

- Work areas, passageways, stairways, and all other areas shall be kept free of debris, equipment, and materials.
- Appropriate trash containers shall be strategically placed and used for disposal of scrap materials and other generated debris.
- Liquids such as paints, solvents, thinners, oils, and greases as well as any other material or containers, which have contained chemicals, shall be disposed of in accordance with applicable hazardous waste procedures and regulatory requirements.
- Storage areas will be kept clean and materials will be stored or placed in an orderly manner.
- Electric welding leads, cords, wires, electrical cables, hoses, and other temporary systems shall be kept off the walking surface.
- Eating areas will be kept clean and free of all food scraps, wrappers, cups and other disposable items.
- All scrap lumber, waste material and rubbish shall be removed from the immediate work area as the work progresses.
- All solvent waste, oily rags and flammable liquids must be kept in fire-resistant covered containers until removed from the worksite.
- Keep floors clean, dry (as possible), slip-resistant, and free of waste, unnecessary material, oil, grease, protruding nails, splinters, holes, or loose boards.
- Equipment and materials in work areas will be limited to actual needs and will be stored in a manner to protect combustible material from ignition sources.
- Equipment and materials shall not be stored within 6 feet of any floor/wall opening or hoist way.

### **5.8.2 Flammable and Combustible Liquids**

- Approved, properly labeled storage cabinets shall be supplied for the storage of flammable liquids in quantities exceeding 15 gallons.
- Flammable and combustible liquids shall not be stored in areas used as exits, stairways, or passageways, and shall not adversely affect the means of egress.

- Smoking shall be prohibited where refueling activities are in progress. Clear and legible signs shall be posted.
- Combustible liquids, including oil or grease, shall be stored in containers or storage tanks labeled with contents and tank capacity. Each tank shall be:
  - Capable of withstanding working pressures and stresses compatible with the type of liquid stored.
  - Maintained in a manner that prevents leakage.
  - Located in an area free of combustible materials.
  - Vented or otherwise constructed to prevent development of excessive pressures or vacuum as a result of filling, emptying or atmospheric temperature changes.
- Care should be taken when welding and cutting in locations where combustibles are exposed. When such welding or cutting is done, the surrounding area shall be inspected. Combustible material shall be removed or protected with fire-resistant blankets or equivalent and an adequate number of approved fire extinguishers shall be immediately available.

### **5.8.3 Compressed Gas Cylinders**

Compressed gas cylinder valves shall be closed whenever (1) work is finished, (2) the cylinders are empty, or (3) the cylinders are moved. Furthermore, compressed gas cylinders shall:

- Be always secured in an upright position, except for short periods when being carried or hoisted.
- Be lifted from one elevation to another shall be lifted only in racks or containers designed for that purpose. Slings shall not be used to hoist cylinders.
- Be stored/located away from potential exposure to sparks, hot slag, or flames. If these cannot be avoided, fire-resistant shields shall be provided.
- Not be used as rollers. Cylinders in storage shall be separated (oxygen from fuel gas) by a 5-foot-high barrier with a 1-hour fire rating or by 20 feet. Gas cylinders shall be secured in place during use and storage.
- Be stored in well-protected, ventilated, dry locations, at least 20 feet from highly combustible materials, and away from egress routes such as stairways and elevators.
- Be returned to the main storage area when empty.
- Not be transported with gauges attached. The gauges shall be removed from cylinders and protective caps installed during transportation.

### **5.8.4 Safe Walking and Working Surfaces**

Supervisors are required to ensure that walking surfaces are suitable for employees to safely use to access work areas. This includes areas prepared by earthmoving equipment or while working

on rooftops or other locations. Supervisors are responsible for monitoring work areas for the following and ensuring the necessary conditions and precautions are taken to prevent injuries associated with substandard walking and working surfaces.

- The surface areas shall be maintained in a clean and, to the extent possible, dry condition.
- Every floor, work area, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.
- Construction areas shall be cleaned and arranged by safe means daily to prevent tripping, slips, and fire hazards.
- Containers shall be supplied for the separation of waste. Those containers intended to be used for the containment of combustible, flammable, or toxic wastes shall be constructed of metal and equipped with covers. Containers shall be emptied at regular and frequent intervals.
- Means shall be available for spill containment. Spills shall be cleaned up by individuals trained to handle the material and shall be done promptly and disposed of properly. (Consult the MSDS for proper handling instructions.)
- Aisles and passageways shall be kept clear and in good repair with no obstruction across or in aisles.

## **5.9 HAZARD COMMUNICATION PROGRAM**

The purpose of the Hazard Communication Program is to evaluate the hazards of all chemicals/materials produced or brought on site and provide chemical hazard information to employees. The management of Amsys Energy LLC is committed to preventing accidents and ensuring the safety and health of our employees. We will comply with all applicable federal and state health and safety rules. Under this program employees are informed of the contents of the OSHA Hazard Communications Standard, the hazardous properties of chemicals with which they work, safe handling procedures and measures to take to protect themselves from the chemicals. These chemicals may be physical or health related.

### **5.9.1 Identifying Hazardous Chemicals**

Detailed information about the physical, health, and other hazards of each chemical is included in a Safety Data Sheet (SDS); the product identifier for each chemical can be easily cross-referenced with the product identifier on its label and on its Safety Data Sheet.

### **5.9.2 Hazard Evaluation Procedures**

Branch Management shall compile and maintain on site, a chemical inventory list of hazardous chemicals/materials known to be present at the site. Personnel who may be exposed to hazardous chemicals need to know what those chemicals are and how to protect themselves. The hazardous chemicals list covers a variety of physical forms including liquids, solids, gases, vapors, fumes, and mists.

### **5.9.3 Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS)**

The manufacturer or importer of a chemical is required by OSHA to develop Safety Data Sheet (SOS) that contains specific, detailed information about the chemicals hazard using a specified format. The distributor or supplier of the chemical is required to provide this SOS to the purchaser.

SDS's are readily available to all employees during their work shifts. Employees can review SOS for all hazardous chemicals used at this workplace.

The SDS's are updated and managed by Amsys Energy LLC. If the SOS is not immediately available for hazardous chemical, employees can obtain the required information by calling Amsys Energy LLC.

#### **5.9.4 Labels and Other Forms of Warning**

The labeling system to be used by Amsys Energy LLC will follow the requirements in the revision of the OSHA Hazard Communication Standard to be consistent with the United Nations Globally Harmonized System (GHS) of Classification of Labeling of Chemicals. The label on the chemical through standardized label elements, including symbols, signal words and hazard statements.

All hazardous chemical containers used at this workplace will have:

1. The original manufacturer's label that includes a product identifier, an appropriate signal word, hazard statement(s), pictogram(s), precautionary statement(s) and the name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.
2. A label with the appropriate label elements just described.
3. Workplace labeling that includes the product identifier and words, pictures, symbols, or combination that provides at least general information regarding the hazards of the chemicals.

Amsys Energy LLC will ensure that all containers are appropriately labeled. No container will be released for use until this information is verified. Workplace labels must be legible and in English. Information in other languages is available at: Amsys Energy LLC.

Small quantities intended for immediate use may be placed in a container without a label, provided that the individual always keeps it in their possession and the product is used up during the work shift or properly disposed of at the end of the workday. However, the container should be marked with its contents.

#### **5.9.5 Training**

Before they start their jobs or are exposed to new hazardous chemicals, employees must attend a hazard communication training that covers the following topics:

- An overview of the requirements in OSHA's Hazard Communication Standard.
- Hazardous chemicals present in their workplace.
- Any operations in their work area where hazardous chemicals are used.
- The location of the written hazard communication plan and where it may be reviewed.
- How to understand and use information on labels and in Safety Data Sheets.

- Physical and health hazards of the chemicals in their work areas.
- Methods used to detect the presence or release of hazardous chemicals in the work area.
- Steps we have taken to prevent or reduce exposure to these chemicals.
- How employees can protect themselves from exposures to these hazardous chemicals through use of engineering controls/work practices and personal protective equipment.
- An explanation of any special labeling present in the workplace.
  - What are pictograms?
  - What are signal words?
  - What are the hazard statements?
  - What are the precautionary statements?
- Emergency procedures to follow if an employee is exposed to these chemicals.

Amsys Energy LLC is responsible to ensure that employees receive this training. After attending training, employees will sign a for verifying that they understand the above topics and how the topics are related to our hazard communication plan.

Prior to introducing a new chemical hazard into any department, each employee in that department will be given information and training as outlined above for the new chemical hazard.

### **Informing Employees who do Special Tasks**

Before employees perform special (non-routine) tasks that may expose them to hazardous chemicals, their supervisors will inform them about the chemicals' hazards. Their supervisors also will inform them about how to control exposure and what to do in an emergency. The employer will evaluate the hazards of these tasks and provide appropriate controls including Personal Protective Equipment all additional training required.

### **Informing contractors and other employers about our hazardous chemicals**

If employees of other employer(s) may be exposed to hazardous chemicals at our workplace (for example, employees of a construction contractor working on-site) It is the responsibility of Amsys Energy LLC to provide contractors and their employees with the following information:

- The identity of chemicals, how to review our Safety Data Sheets, and an explanation of the container labeling system.
- Safe work practices to prevent exposure.

Amsys Energy LLC will also obtain a Safety Data Sheet for any hazardous chemical a contractor brings into the workplace.

## **5.10 USE OF HAND AND POWER TOOLS**

Employees using hand and power tools may be exposed to the hazard of falling, flying, abrasive or splashing objects; harmful dusts; fumes; mists; vapors; or gases. Employees using hand and power tools shall be provided with the personal protective equipment necessary to protect them from these hazards.

Following these five basic safety rules can reduce/prevent most hazards involved in the use of power tools:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool before use. Do not use a tool if damage or a defect is noted.
- Operate the tool according to the manufacturer's instructions.
- Provide and use the right protective equipment for both the tool and activity.

***NOTE:** Tool lanyards are mandatory when using tools at heights. “**Danger Do Not Enter**” barricades may be necessary to protect employees and members of the public below overhead operations.*

### **5.10.1 Power Tool Precautions**

Power tools can be hazardous when improperly used. Depending on the type of power tool and the power source used (e.g., electric, pneumatic, liquid fuel, hydraulic, powder-actuated), the proper precautions must be taken.

Employees shall be trained in the use of all power tools they need to use. They shall understand the general safety precautions and potential hazards associated with use of that tool, including specific manufacturer use instructions.

Power tool users shall observe the following general precautions:

- Always be aware of other workers in your immediate area that may be affected using that tool.
- Never carry tools by the cords or hoses. Tools that must be raised or lowered from one elevation to another shall be placed in tool buckets or raised by hand lines.
- While working overhead on towers, rooftops, etc., install barricades or other positive means to safeguard employees working below.
- Damaged or defective tools are to be taken out of service, tagged “Do Not Operate,” and stored in a controlled area until appropriate repairs have been made.
- Tools are not to be altered in any way and shall be operated in accordance with manufacturer specifications.
- Tools required to have guards shall be operated with guards in place.
- Persons who operate ground compactors (e.g., rollers, chisel impact hammers, etc.) shall wear appropriate protective footwear.
- Disconnect tools when not in use, before servicing, and when changing accessories, such as blades, bits, and cutters.

- Job-made tools of any kind are prohibited (such as tools made of rebar, rigging equipment, or equipment that is modified in any way).
- Metallic measuring tapes or metal fish tapes shall not be used on or near exposed energized conductors, power lines, and/or other related equipment.
- Tools shall not be thrown.
- Tools shall not be left unsecured on scaffolds, platforms, or other elevated places where they might fall and endanger employees below.
- Impact tools such as chisels, punches, drift pins, and hammers that become worn, mushroomed, or cracked shall be removed from service.
- Proper apparel must be worn. Avoid loose clothing, ties, or jewelry that might be caught in moving parts.
- Only manufacturer-approved extensions shall be used for added leverage on any tool.
- Tools with sharp edges shall be stored and handled in a manner that prevents risk of injury.
- Tool handles shall be kept clean of oil and grease.

### **5.10.2 Electric Tools**

Employees using electric tools must be aware of several dangers. The most serious is the possibility of electrocution. To protect the user from shock, portable electrical tools shall utilize one or more of the following:

- Three-wire cord that is grounded through a permanent, code approved power source.
- Double insulated properties.
- Use Ground Fault Circuit Interrupter (GFCI) electrical outlets in a damp or wet atmosphere.

### **5.10.3 Pneumatic Tools**

There are several dangers encountered in the use of pneumatic tools. One of the main dangers is being hit by one of the tool attachments or by a fastener. To protect employees from hazards, users shall follow the additional requirements below:

- Air supply hoses exceeding 1/2-inch internal diameter shall be protected by excess flow valves to prevent “whipping” in the event of hose separation or failure. A short wire or positive locking device attaching the air hose to the tool shall serve as an added safeguard.
- Working with noisy tools (e.g., jackhammer) requires the proper use of ear protection.
- When using pneumatic tools, employees must check that the tools are fastened securely to the hose by a positive means to prevent them from becoming disconnected.
- The pressure of compressed air used for cleaning purposes must be reduced to 30 psi or less. Compressed air shall not be used for cleaning or blowing dust from any part of the body or clothing.

- Jackhammers can cause fatigue, strains, and cumulative disorders; heavy rubber grips and special ergonomic gloves can reduce these effects.
- Workers operating a jackhammer or chipping hammer must wear safety glasses, face shield (secondary protection), and metatarsal (foot) guards.

#### **5.10.4 Tools Powered by Gasoline or Other Fossil Fuels**

The most serious hazard with fuel-powered tools comes from fuel vapors that can burn or explode under the right conditions. To prevent this from happening, employees shall follow these requirements:

- Gasoline powered tools shall not be used in unventilated areas or confined spaces.
- Gasoline shall be dispensed from only UL/FM approved safety cans. These cans shall be properly labeled and stored when not in use.
- An in-service fire extinguisher of the appropriate class and size must be readily available in the area when fuel-powered tools are used.
- Use extreme care while handling, transporting, and storing fuel and always handle according to proper procedures for flammable liquids.
- Before the tank for a fuel-powered tool is refilled, the user must shut the engine down and allow it to cool to prevent accidental igniting of hazardous vapors.

#### **5.10.5 Powder-Actuated Tools**

All employees using powder-actuated tools must receive training and be certified in the use and operation of the tool(s) to be used. Training and certification for one type of tool does not allow personnel to operate all types of powder-actuated tools. General safety precautions for the use of powder-actuated tools include:

- These tools should not be used in an explosive or flammable atmosphere.
- Before using the tool, the employee should inspect it and ensure that all moving parts operate freely.
- Warning signs shall be posted in areas where powder-actuated tools are being used.
- The tool should never be pointed at another person.
- The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.
- Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least five pounds greater than the total weight of the tool.
- If a powder-actuated tool misfires, the employee should wait at least 30 seconds, and then try firing it again. If it still will not fire, the user should wait another 30 seconds and then

carefully remove the load. The defective cartridge should be put in water.

- Safety glasses and face shields shall be worn when using a powder-actuated tool.
- The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles, which might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.
- All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.
- Control shall be maintained over the powder-actuated charges. Each cartridge shall be accounted for and properly stored. No live or spent cartridges shall be left on the ground or disposed of in site trash cans or other unauthorized onsite or off-site containers.
- If the tool develops a defect during use, it should be unloaded, tagged, taken out of service immediately, and not used until repaired.

#### 5.10.6 Hand Tools

- Only guarded knives will be used for cutting.
- Tie wraps, boxes, etc., will be cut with snips or guarded knives.
- When working with tools at heights, always use a tool lanyard to secure tools from falling.

**NOTE:** Unguarded knives such as common utility knives are **prohibited** on Amsys Energy sites. Guarded knives shall be used when the task requires the use of a knife.



101199 Maxisafe Utility Knife – Example of approved utility knife with a guarded blade.

### 5.11 PERSONAL PROTECTIVE EQUIPMENT

There are over 75 OSHA Standards that address the need and use for Personal Protective Equipment (PPS). While PPE use can prevent injuries and illnesses, engineering controls should be the primary methods used to eliminate or minimize hazard exposure in the workplace. When controls are not practical or applicable, personal protective equipment can be used to reduce or eliminate personnel exposure to hazards. Personal protective equipment (PPE) must be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses.

Hazards in the workplace are a fact of life. No matter what you do, there's the need for personal protective equipment on many of the jobs you perform. Health hazards, eye hazards, noise and chemicals. whether or not you use personal protective equipment is really up to you. If you choose not to, your attitude may be the biggest hazard of all. Personal Protective equipment is one of the best ways to protect your own health and safety.

### **5.11.1 Definition**

What is personal protective equipment?

Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.

These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.

What can be done to ensure proper use of personal protective equipment?

All personal protective equipment should be safely designed and constructed and should be maintained in a clean and reliable fashion. It should fit comfortably, encouraging worker use. If the personal protective equipment does not fit properly, it can make the difference between being safely covered or dangerously exposed. When engineering, work practice, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment to their workers and ensure its proper use. Employers are also required to train each worker required to use personal protective equipment to know:

- When it is necessary
- What kind is necessary
- How to properly put it on, adjust, wear and take it off
- The limitations of the equipment
- Proper care, maintenance, useful life, and disposal of the equipment

If PPE is to be used, a PPE program should be implemented. This program should address the hazards present; the selection, maintenance, and use of PPE; the training of employees; and monitoring of the program to ensure its ongoing effectiveness.

### **5.11.2 Personal Protective Equipment Requirement**

Hazards exist in every workplace: sharp edges, falling objects, flying sparks, chemicals, noise and a host of other potentially dangerous situations. Personal protective equipment, or PPE, is equipment you wear to reduce your exposure to a variety of hazards. PPE includes such items as gloves, foot and eye protection, protective hearing devices (earplugs/muffs), hard hats, respirators and full body suits.

#### **Hazard Control**

Controlling a hazard at its source is the best protection method. Using engineering or work practice controls to manage or eliminate hazards is always recommended. PPE is considered the last resort of protection.

The requirement for PPE: Making sure the best possible protection in the workplace is available is a cooperative effort of both the company and you. This will help in establishing and maintaining a safe and healthful work environment.

Both employers and employees must understand and do the following:

- To understand the types of PPE you may need at work, you should know the basics of how to conduct a hazard assessment of the workplace. This will determine the PPE you'll need for your job. Once you know this, you'll need to be trained in the proper use and care of your PPE.
- Always notify your supervisor if your PPE needs to be repaired or replaced.

## **PPE Requirements**

All PPE used on the job should meet all ANSI requirements, and will be kept clean and reliable. All required PPE will be provided by Amsys Energy . Fit and comfort will be considered when selecting PPE for the workplace. If your PPE fits well and is comfortable to wear, you'll be more likely to use it. Always let your supervisor know if there are problems with the fit or comfort of your PPE. PPE that doesn't fit properly can make the difference between being safely covered or dangerously exposed. If you need to wear different types of PPE or get your own protective equipment per your specific needs, make sure they're compatible with the company standard and get clearance of its use from your Field Supervisor who will be responsible to assure its adequacy. Employees are responsible for proper maintenance and sanitation of all provided and personal protective equipment.

It's your responsibility to -

- Wear the PPE issued
- Maintain, clean, and store your PPE properly

Always wear your required PPE to protect you from workplace hazards.

The Field Supervisor is responsible to complete the Job Briefing/ Routine Job Hazard Analysis [JHA] Form available in Appendix A to evaluate the work environment of the day and that all employees have proper protective equipment and understand how to wear and use PPE properly before being allowed to perform work requiring the use of the PPE for that day. The Field Supervisor will certify this evaluation with his name and date.

### **5.11.3 Head Protection**

Hard Hats protect your head from low hanging or falling objects. Wear hard hats as they were intended to be worn and never make modifications to your hat, such as drilling air holes in the sides. Each hat is engineered for impacts and if you modify the hat, you could damage the hat to such a degree where the hat will not afford the designed protection. Bump caps are made of lesser quality plastic and are not engineered for falling objects or impacts. Bump caps are used in areas where there are bump hazards and not falling objects. Many food processing facilities use bump caps solely for the purpose of containing hair and not for protection from impacts of falling objects.

- Bump caps and metallic hard hats or caps are prohibited.
- Certain types of protective headgear are permitted for tower climbing and rescue operations so long as they meet the requirements of ANSI Z89.1 (2003). Climbing headgear is inadequate and may not be worn if the work does not involve climbing.
- Welders are subject to the same head protection requirements, even during welding operations.
- Hard hats are always required to be worn with the brim forward while on site, except:
  - o During lunch and break periods providing no work is in progress in the immediate break area

- o When operating equipment with fully enclosed cabs.
- Hard hats shall not be altered in any way. Hard hats shall conform to ANSI Z89.1 (2003) Class G & E.

#### **5.11.4 Eye Protection**

Safety glasses provide eye protection from flying chips, debris and other eye hazards. Goggles protect your eyes from chemical splashes and face shields are a safeguard when worn over other protective eyewear, such as safety glasses. All personnel on the project shall wear approved protective eyewear while on site. Eyewear must meet the requirements of ANSI Z-87.1 (2003).

- Safety glasses are always required to be worn on site, except:
  - o During lunch and break periods providing no work is in progress in the immediate break area
  - o When operating equipment with fully enclosed cabs.
- Tinted lenses (including tinted prescription glasses) are prohibited inside buildings or other structures with limited illumination.
- Safety glasses must have ANSI approved side shields. (Note: ANSI approved side shields shall not be used with non-ANSI approved eyewear.)
- All grinding operations shall be performed with a full-face shield and safety glasses or goggles.
- Persons who require prescription or corrective eyeglasses shall use ANSI approved prescription safety glasses, goggles, or over-the-glass (OTG) safety glasses.
- Welders shall wear dual eye protection while welding (i.e., safety glasses worn under the welding helmet).

#### **5.11.5 Respiratory Protection**

Respirators protect you against a wide variety of dust, fumes, gases, vapors and many other health hazards. One of the most misused respirators in industry is the dust mask. It's designed only for certain types of dust, but many people believe it's good for any type of hazard. A dust mask cannot be used for spray painting or other types of vapors. Each specific hazard must have the proper respirator that provides protection for that hazard. Proper fitting of respiratory equipment and the wearing of equipment as it was intended is equally important. If the hazards require employees to wear respiratory protection, The Amsys Energy Safety Manager will develop and implement a comprehensive respiratory protection program for the affected employees that, at minimum, complies with all requirements set forth by OSHA in 29 CFR 1910.134.

#### **5.11.6 Hearing Protection**

Ear plugs or earmuffs can go a long way to avoid hearing loss. Adjust your muffs so they're comfortable and don't squeeze your ears. Disposable ear plugs must be clean and fitted properly. Never insert dirty ear plugs or use dirty hands when putting the plugs in your ears. If a job-related hearing hazard is extreme or prolonged and requires a form of hearing protection, the Amsys Energy Safety Manager will develop and implement a hearing conservation program in accordance with

OSHA requirements (29 CFR 1910.95) for the affected employees. This includes the mandatory use of protective equipment when sound levels reach 90 decibels (dBa) (TWA) and implementation of other requirements associated with the 85 dBa (TWA) action level.

- Approved hearing protection shall be worn by all personnel whenever in designated areas.
- Amsys Energy Field Operations Management is responsible for establishing areas and posting signs where hearing protection may be required.

### **5.11.7 Foot Protection**

At a minimum, sturdy, leather, work boots/shoes are required. Boots and safety shoes are good personal protective equipment. Even if your job doesn't require steel toed safety shoes, leather topped shoes can provide a degree of protection from chemical splashes, petroleum products and small cuts, bruises and abrasions. Your shoes should be in good condition and the soles of the shoes should be slip resistant. Keep your footwear in good condition and always clean off your shoes before climbing ladders or getting into vehicles. Grease or slippery shoes can create accidents. In addition, the following requirements shall apply where applicable:

- Steel toe shoes that comply with ANSI Z-41.1 are required when working with jackhammers and pavement breakers, or for other tasks as deemed necessary based on the task/job assessment.
- Additional foot protection, such as shin protection, metatarsal guards, etc. shall be worn whenever the job being performed creates additional hazards and possible injury of the foot or lower leg/ankle.

### **5.11.8 Hand Protection**

All personnel engaged in work shall wear gloves appropriate for the scope. Appropriate work gloves shall be worn whenever personnel are performing work where their hands and/or fingers might be cut or punctured by the material being handled. Gloves protect your hands from chemicals, rough or sharp parts and a wide range of skin protection. Keep in mind that there are literally hundreds of different types of gloves, each designed for a specific purpose, so select the proper glove for the job. Specifically:

- Appropriate work gloves shall be worn when working on or at any telecommunication work site.
- All personnel engaged in wire or coaxial cable cutting, stripping, or grounding installation shall wear leather or cut resistant gloves such as Kevlar work gloves.
- Leather gloves are required for work on 12-50-volt electrical systems.
- Insulated gloves are required for energy isolation work and when in the proximity of 51-240-volt energized systems (refer to NFPA Standard 70E).
- Work gloves shall not be required when work activities require the ability to complete detailed work with the fingers, such as terminating wiring. Generally, work gloves should not be worn when operating rotating tools or equipment, such as a conduit threader, drill press, or other rotating machinery.

- Work gloves shall be promptly replaced when they become damaged (e.g., holes and/or tears).

### **5.11.9 Dress Requirements**

All personnel are required to wear clothing appropriate for the work being performed. Long pants to the ankle free of rips and holes, shirts with sleeves, and sturdy, leather, work shoes/boots are required. Chemical clothing and encapsulating suits are used when there are vapor, gas and other airborne hazards. When you're engaged in this type of work, more training is necessary, to make sure you understand what protection is offered and how to specifically use, handle and store the equipment. When we talk about personal protective equipment, the basic equipment just described comes to mind, but in a work environment, you must consider many other safety devices that could be lumped together with personal protective equipment.

- Extra caution must be used when working near moving machinery to prevent clothing and body parts from being caught by moving components.
- Clothing soaked with grease, paint, thinners, solvents, fuels, or similar materials shall not be worn.

### **5.11.10 Training**

Make sure you know how to use and maintain the PPE you're required to wear. Whether you're wearing hardhats or fully encapsulating suits, you need to understand how your PPE protects you and when it won't. Training includes the type of PPE necessary and when it must be worn, proper care of your PPE, how to put on, adjust, wear, and remove PPE; when to replace worn-out PPE, and; how to dispose of contaminated PPE.

OSHA requires companies to assess the workplace to determine if hazards are present or likely to be present that require you to PPE. You, in turn, must follow the safety rules and procedures in place and wear all appropriate PPE. In a hazardous environment or operation, the right application and use of PPE will reduce injuries or exposure in the workplace. Follow these industrial safety tips for PPE use.

## **5.12 WORKING AROUND FLOOR AND WALL OPENINGS**

### **5.12.1 General Requirements**

When it is necessary to create a floor hole or wall openings, the Supervisor shall implement the following safeguards to protect the employees and public:

- All floor holes and wall openings shall be adequately covered and appropriately marked (e.g., "FLOOR HOLE - DANGER, DO NOT REMOVE.")

*Note: The use of barricade tape as a physical protection around holes or openings is prohibited.*

- To avoid the potential for overloading, no material shall be stored on any floor holes cover or against a wall opening cover.
- A metal plate is acceptable to cover a wall opening as long as it can withstand a 200-pound force without failure from any direction.
- Every floor hole into which employees can walk shall be guarded by a standard railing with

toe boards on all exposed sides or a floor hole cover of standard strength and construction.

- Floor hole covers for a circular, square, or rectangular shape floor hole shall extend a minimum of 4 inches from the edge of the entire hole being covered.

### **5.12.2 Temporary Flooring Covers**

When a floor opening exceeds 40 inches at its narrowest dimension, temporary flooring of sufficient strength for the anticipated loads shall be required. Specifically:

- Temporary flooring shall be covered with ¾-inch exterior-grade plywood or equivalent. In addition, these covers shall be secured to prevent them from slipping or being displaced by personnel traffic.
- Temporary flooring can be solid 2-inch lumber positively secured to prevent displacement from personnel traffic.

### **5.13 FIRE PROTECTION**

**The Amsys Energy Fire Protection Program shall consist of the**

**following** provisions for separate storage of flammable materials.

- Provisions meeting regulatory requirements for storage or dispensing of flammable liquids.
- Employee training in the proper use of fire extinguishers.
- Fire extinguishers provided and available with current inspections/certifications.
- Clear access provided for firefighting equipment to all areas of the project.

Appropriate fire-fighting equipment shall be immediately available in the work area and shall be maintained in a ready state.

No welding, cutting, or heating shall be done where the application of flammable paints or the presence of other flammable compounds or heavy dust concentrations creates a hazard.

Fire extinguishers shall be conspicuously marked, and clear access to each shall be maintained.

Fire extinguishers shall be inspected, tested, and maintained in accordance with National Fire Protection Association (NFPA) standards.

Each fire extinguisher shall be replaced immediately after discharge with another fire extinguisher that is fully charged and of the proper size and type.

Smoking shall be prohibited at or near operations that constitute a fire hazard. These types of areas may be open field/pastures (especially if a local regulatory burn ban is in place), third-party properties that may have combustible material present, inside shelters that house smoke-sensitive detection equipment, etc.

Only approved containers and portable tanks shall be used for the storage and handling of flammable and combustible liquids. UL/FM approved metal safety cans shall be employed for the handling and use of flammable liquids in quantities greater than 1 gallon.

Flammable or combustible liquids shall not be stored near exits, stairways, or any other areas normally used for the safe passage of people.

If normal fire prevention methods are not enough to adequately ensure the prevention of fires, additional personnel shall be added to serve as a fire watch to guard against potential fires. Fire watches shall be trained and remain at the location a minimum of 30 minutes after work is stopped to ensure that no possibility of combustion and a subsequent fire exists.

***NOTE:** Burning of excess construction materials (wood, cardboard, trash, etc.) at the work site is forbidden. Proper fire prevention planning includes strict adherence to local fire codes, ordinances, or established local burn bans.*

## **5.14 ILLUMINATION**

The Amsys Energy Field Supervisor should plan work as far as practicable to limit the need for night work. When night work is required, the responsible supervisors shall ensure:

- The customer and landlord have been informed and authorized night work to be performed.
- All necessary precautions have been implemented.
- Instructions and spotters are provided for the movement of heavy equipment/trucks around the work.
- Adequate barriers are provided around areas where hazards may exist, and such hazards are clearly lit.
- Lighting provided is adequate, and personnel are not working in the shadows.
- JSAs and risk assessments have been completed as required by the nature of the work.

### **5.14.1 Area Lighting**

The following general requirements for area lighting shall be followed:

- All points of exit, pathways, and muster points shall be clearly illuminated and marked.
- Ladder access and egress shall be clearly illuminated.
- Tower lighting shall be located in a manner that illuminates all work areas.
- Lighting should be provided in confined spaces, and back-up lighting shall be provided in case of power failure.
- Lighting poles and other metal poles shall be grounded, and the circuit fitted with GFCIs.
- Cables supporting temporary lighting shall be routed to ensure they do not present a hazard.
- All lighting fixtures shall be installed in a secure manner to prevent accidental movement or falling.
- All lighting fixtures shall be certified (e.g., UL listed).

- Temporary electrical/lighting installations shall meet all the requirements of the National Electrical Code or applicable local code.
- Light bulbs attached to lighting strings and extension cords shall be protected by lamp guards.
- Broken or defective bulbs shall be promptly replaced.
- Metal-case sockets shall be grounded.

### 5.15 CONSTRUCTION / HEAVY EQUIPMENT

- Only qualified and authorized employees may operate specific construction equipment.
- Operators shall always wear seatbelts when operating any piece of construction equipment.
- Workers in the vicinity of operating equipment shall wear high visibility reflective vests.
- Moving equipment shall be equipped with automatic backup alarms.
- Personnel, other than the operator, shall not ride on the equipment unless equipment is provided with an approved passenger/demonstrator seat equipped with seatbelt protection.
- Personnel shall not walk or work under loads on cranes/hoists.
- Personnel shall stay clear of the swing radius (cranes, counterweights, etc.).

### 5.16 Heat and Cold Stress

This section is designated to protect employees from hazards posed by working in the outdoor environment. Amsys Energy is committed to preventing heat related illnesses that can occur to employees working outdoors by:

- Identifying, evaluating and controlling potential exposure to extreme temperature, humidity, and other environmental factors.
- Providing supervisor and employee training
- Establishing heat/cold-related emergency procedures

#### 5.16.1 Preventing Heat-Related Illnesses

Applies when employees are exposed to outdoor heat at or above the following temperature and clothing action levels.

Outdoor Temperature & Clothing Action Levels	
All other clothing	89 °F
Double-layer woven clothes including coveralls, jackets and sweatshirts	77 °F
Non-breathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52 °F

Outdoor work includes any employee assigned to work in the outdoor environment on a regular basis. This does not apply to incidental exposure which exists when an employee is not required

to perform a work activity outdoors for more than fifteen minutes in any sixty- minute period.

Note: It is possible outdoor heat related illness might result at temperatures below the action levels when have not acclimatized to sudden and significant increases in temperature and humidity. Supervisors and employees should monitor for sign and symptoms of outdoor heat related illness when there is a significant and sudden increase in temperature.

### **5.16.2 Responsibility**

Supervisors are responsible for implementing this program as part of their Accident Prevention Program. Supervisors are responsible for encouraging employees to frequently consume acceptable beverages (acceptable beverages include water and sports drinks that do not contain caffeine) to ensure hydration.

Employees are responsible for monitoring their own personal factors for heat related illness including consumption of water or other acceptable beverages to ensure hydration.

### **5.16.3 Evaluating and Controlling Outdoor Heat Stress Factors**

In addition to outdoor temperature, supervisors should evaluate other potential heat stress factors. These factors include:

- Radiant Heat (Example: Reflection of heat from asphalt, rocks, or composite roofing material, or work in direct sunlight)
- Air Movement (Example: Wind blowing and temperature above 95 °F)
- Conductive Heat (Example: Operating orchard tractor for mowing)
- Workload Activity and Duration (Examples: Hand sawing, digging with a shovel)
- Personal Protective Equipment (Examples: Wearing a respirator, chemical resistant suit and gloves for pesticide application, or leathers and gloves for welding)

Supervisors should attempt to control outdoor heat stress factors when feasible. Controls to consider include:

- Taking breaks in a shaded area (building, canopy and under trees)
- Starting the work shift early (when daylight begins) and ending the shift early and/or not working outside during the hottest part of the day.
- Removing personal protective equipment such as respirators, chemical resistant clothing and gloves, and welding leathers during breaks
- Using cooling vests or headbands
- Workers should not work alone in the heat for long periods of time.

### **5.16.4 Drinking Water**

Supervisors should ensure that their employees have a sufficient quantity of potable drinking water and is accessible to employees.

### **5.16.5 Procedures for Responding to a Heat-Related Illness**

Supervisors will respond to heat-related illness in a quick and safe manner. The table below outlines the potential types of heat-related illnesses, signs and symptoms and specific first aid and emergency procedures. The information should be present at all work sites where outdoor work activities are conducted.

- Employees experiencing signs and symptoms of a heat-related illness are to cease work and report their condition to their supervisor.
- Employees showing signs or demonstrating symptoms of heat-related illness are to be relieved from duty and provided sufficient means to reduce body temperature.
- Employees experiencing sunburn, heat rash or heat cramps will be monitored to determine whether medical attention is necessary.
- Emergency medical services will be called (911) when employees and students experience signs and symptoms of heat exhaustion or heat stroke.

<b>Heat-Related Illness First Aid and Emergency Response Procedures</b>		
<b>Heat-Related Illness</b>	<b>Signs and Symptoms</b>	<b>First Aid and Emergency Response Procedures</b>
<b>Sunburn</b>	<ul style="list-style-type: none"> <li>• Red, hot skin</li> <li>• Possibly blisters</li> </ul>	<ul style="list-style-type: none"> <li>• Move to shade, loosen clothes</li> <li>• Apply cool compress or water to burn</li> <li>• Get medical evaluation if severe</li> </ul>
<b>Heat Rash</b>	<ul style="list-style-type: none"> <li>• Red, itchy skin</li> <li>• Bumpy skin</li> <li>• Skin infection</li> </ul>	<ul style="list-style-type: none"> <li>• Get out of sun</li> <li>• Keep affected area dry</li> </ul>
<b>Heat Cramps</b>	<ul style="list-style-type: none"> <li>• Muscle cramps or spasms</li> <li>• Grasping the affected area</li> <li>• Abnormal body posture</li> </ul>	<ul style="list-style-type: none"> <li>• Drink water to hydrate body</li> <li>• Rest in a cool, shaded area</li> <li>• Massage affected muscles</li> <li>• Get medical attention in cramps persist</li> </ul>
<b>Heat Exhaustion</b>	<ul style="list-style-type: none"> <li>• High pulse rate</li> <li>• Extreme sweating</li> <li>• Pale face</li> <li>• Insecure gait</li> <li>• Headache</li> <li>• Clammy and moist skin</li> <li>• Weakness</li> <li>• Fatigue</li> <li>• Dizziness</li> </ul>	<ul style="list-style-type: none"> <li>• <b>CALL 911*</b></li> <li>• <b>Provide EMS with directions to worksite</b></li> <li>• Move to shade and loosen clothing</li> <li>• Start rapid cooling with fan, water mister or ice packs</li> <li>• Lay flat and elevate feet</li> <li>• Drink small amounts of water to hydrate and cool body</li> </ul>
<b>Heat Stroke</b>	<ul style="list-style-type: none"> <li>• Any of the above, but more severe</li> <li>• Hot, dry skin (25-50% of cases)</li> <li>• Altered mental status with confusion and agitation</li> <li>• Can progress to loss of consciousness and seizures</li> </ul>	<ul style="list-style-type: none"> <li>• <b>CALL 911*</b></li> <li>• <b>Provide EMS with directions to worksite</b></li> <li>• Immediately remove from work area</li> <li>• Start rapid cooling with fan, water mister or ice packs</li> <li>• Lay flat and elevate feet</li> <li>• If conscious give sips of water</li> <li>• Monitor airway and breathing, administer CPR if needed</li> </ul>

### 5.16.6 Preventing Cold-Related Illnesses

During the winter months many workers face an additional occupational hazard— exposure to the cold. Some health problems can arise including frostbite, trench foot, and hypothermia. This section is designed to provide basic information on how to prevent cold-related illnesses.

### **5.16.7 Supervisor Responsibility**

Supervisors are to:

- Determine whether employees will be working in cold weather conditions.
- Ensure that employees are equipped with and wear protective outerwear when necessary.
- Implement work/warm-up schedules when indicated by the equivalent chill temperature chart.
- Upon observing, or being notified of, an employee experiencing the initial symptoms of frostbite or hypothermia, the supervisor is to ensure that the employee is moved to a warm location. If symptoms worsen or additional symptoms appear, the supervisor should ensure that the employee is examined by a medical professional. The supervisor must complete an Accidental Injury or Occupational Illness Report upon notification of potential frostbite or hypothermia.

### **5.16.8 Employee Responsibility**

- Wear department provided protective outerwear or equivalent personal protective outerwear when required to work in cold weather conditions.
- An employee experiencing any of the initial symptoms of frostbite or hypothermia must immediately move to a warm location and notify his/her supervisor of the symptoms. If symptoms worsen or additional symptoms appear, the employee must immediately seek medical attention.

Supervisors are responsible for implementing this program as part of their Accident Prevention Program. Supervisors are responsible for encouraging employees to frequently consume acceptable beverages (acceptable beverages include water and sports drinks that do not contain caffeine) to ensure hydration.

Employees are responsible for monitoring their own personal factors for heat related illness including consumption of water or other acceptable beverages to ensure hydration

### **5.16.9 Preventing Cold-Related Disorders**

The following recommendations may help to reduce the number of cold-related disorders that workers experience during the winter months.

#### **Personal Protective Clothing**

- Dress appropriately. Wear at least three layers:
  - An outer layer to break the wind and allow some ventilation (like Gore-Tex or nylon)
  - A middle layer of wool, down, or synthetic pile to absorb sweat and retain insulating properties when wet;
  - An inner layer of cotton or synthetic weave to allow ventilation and escape of perspiration.
- Layer clothing to create air pockets that help retain body heat. Layering also makes adapting to changes in weather and level of physical exertion easier.
- Keep available a change of clothing, if work garments become wet.
- Pay special attention to protecting feet, hands, head, and face. Keep the head covered (up to 40% of body heat can be lost when the head is exposed). Fingers and hands lose their dexterity at temperatures below 59 °F.
- Wear footgear that protects against cold and dampness. Footgear should be insulated and fit

comfortably when socks are layered.

- Avoid wearing dirty or greasy clothing because such garments have poor insulating properties.

#### **Environmental Protection**

- Protect hands, face, and feet from frostbite with an on-site source of heat. Air jets, radiant heaters, or contact warm plates may be employed.
- Provide a heated shelter for workers who experience prolonged exposure to the equivalent wind-chill temperature of 20 °F or less.
- Shield work areas from drafty or windy conditions.
- Use thermal insulating material on the handles of equipment when temperatures drop below 30 °F. Do not sit or kneel on cold, unprotected surfaces.

#### **5.16.10 Procedures for Responding to a Cold-Related Illness**

Supervisors will respond to cold-related illness in a quick and safe manner. The table below outlines the potential types of cold-related illnesses, signs and symptoms and specific first aid and emergency procedures. The information should be present at all work sites where outdoor work activities are conducted.

- Employees experiencing signs and symptoms of a cold-related illness are to cease work and report their condition to their supervisor.
- Employees showing signs or demonstrating symptoms of cold-related illness are to be relieved from duty and provided sufficient means to increase body temperature.
- Employees experiencing mild hypothermia will be monitored to determine whether medical attention is necessary.
- Emergency medical services will be called (911) when employees and students experience signs and symptoms of severe hypothermia, frostbite or trench foot.

## Cold-Related First Aid and Emergency Response Procedures

Cold-Related Illness	Signs and Symptoms	First Aid and Emergency Response Procedures
Frostbite	<p>Reddened skin develops gray/white patches.</p> <p>Numbness in the affected part.</p> <p>Feels firm or hard.</p> <p>Blisters may occur in the affected part, in severe cases.</p>	<p>Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible. Follow the recommendations described below for hypothermia.</p> <p>Do not rub the affected area to warm it because this action can cause more damage.</p> <p>Do not apply snow/water. Do not break blisters.</p> <p>Loosely cover and protect the area from contact.</p> <p>Do not try to rewarm the frostbitten area before getting medical help; for example, do not place in warm water. If a frostbitten area is rewarmed and gets frozen again, more tissue damage will occur.</p> <p>It is safer for the frostbitten area to be rewarmed by medical professionals.</p> <p>Give warm sweetened drinks, if the person is alert. Avoid drinks with alcohol.</p>
Immersion/Trench Foot	<p>Redness of the skin, swelling, numbness, blisters</p>	<p>Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible.</p> <p>Remove the shoes, or boots, and wet socks.</p> <p>Dry the feet.</p>
Hypothermia	<p><b>MILD:</b> An exposed worker is alert. He or she may begin to shiver and stomp the feet in order to generate heat.</p> <p><b>MODERATE/SEVERE:</b> As the body temperature continues to fall, symptoms will worsen and shivering will stop.</p> <p>The worker may lose coordination and fumble with items in the hand, become confused and disoriented. He or she may be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur. A person could die if help is not received immediately.</p>	<p>Seek medical assistance as soon as possible.</p> <p>Move the person to a warm, dry area.</p> <p>Remove wet clothes and replace with dry clothes, cover the body (including the head and neck) with layers of blankets; and with a vapor barrier (e.g. tarp, garbage bag). Do not cover the face.</p> <p>If medical help is more than 30 minutes away:</p> <p>Give warm sweetened drinks if alert (no alcohol), to help increase the body temperature. Never try to give a drink to an unconscious person.</p> <p>Place warm bottles or hot packs in armpits, sides of chest, and groin.</p> <p>Call 911 for additional rewarming instructions.</p> <p><b>If a person is not breathing or has no pulse:</b></p> <p><b>Call 911 for emergency medical assistance immediately.</b></p> <p>Treat the worker as per instructions for hypothermia, but be very careful and do not try to give an unconscious person fluids.</p> <p>Check him/her for signs of breathing and for a pulse. Check for 60 seconds.</p> <p>If after 60 seconds the affected worker is not breathing and does not have a pulse, trained workers may start rescue breaths for 3 minutes.</p> <p>Recheck for breathing and pulse, check for 60 seconds.</p> <p>If the worker is still not breathing and has no pulse, continue rescue breathing.</p> <p>Only start chest compressions per the direction of the 911 operator or emergency medical services*</p> <p>Reassess patient's physical status periodically.</p>

## **6.0 FIRST AID**

### **6.1 Purpose**

To define minimum company requirements and responsibilities for providing quality first aid and medical care for occupational injuries and illness.

### **6.2 Scope**

This procedure applies to all facilities.

### **6.3 Responsibility**

- The Safety Director is responsible for assuring that all Foreman's and Supervisors have CPR and First Aid training.
- Injured personnel will report immediately to his/her supervisor.
- The supervisor is responsible for filling out the first report of injury and fax within one hour to the HR department.
- First aid kits will be available in designated locations, shop bathroom, all job site toolboxes, and all service trucks. They are stored in weatherproof plastic or steel cases that open readily.
- A record of first aid provided should be noted on the First Aid Injury Log that is maintained at the office.
- If no medical attention is available within 4 minutes, an individual trained in first aid and CPR will be available.
- The contents of a first aid kit will meet or exceed requirements of ANSI Standard Z308.1-1998.
- The supervisor will be responsible for inspecting the first aid kit on a periodic basis.
- The facility emergency action plan is completed by the safety manager and it identifies phone numbers and emergency information.
- Eye and/or body flushing solutions will be available in immediate work areas. This solution can be found in the first aid kits. Job site facilities have eye wash and emergency showers and those are pointed out to personnel at job site safety meeting.
- No injured personnel that need medical attention will drive themselves to the location to get medical treatment. Jobsite foreman is responsible for transporting or calling emergency numbers that are posted to provide transportation for the injured person.
- Foremen on a job site have the responsibility to attain emergency phone numbers and post them at the job site.
- Before workers are sent to a work site, the Forman must ensure that arrangements are in place to transport injured or ill workers from the work site to the nearest health care facility. The Foreman will ensure that an ambulance service is readily available to the work site when travel conditions are normal. If an ambulance service is not readily available to the work site, or if travel conditions are not normal, the Forman will ensure that other transportation is available that: (a) is suitable, considering the distance to be travelled and the types of acute illnesses or injuries that may occur at the work site, (b) protects occupants from the weather, (c) has systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken, and (d) can accommodate a stretcher and an accompanying person if required to.

#### **6.4 Trained Personnel**

All Supervisors and Foreman's are trained in First Aid by the Red Cross and certification for that training.

#### **6.5 First Aid Supply Maintenance**

Our facility first aid supplies are monitored by a vendor that automatically keeps supplies refurbished and replaced as needed. The field first aid kits are replaced whenever they are used and are monitored weekly by job site foreman utilizing Appendix 16A First Aid Inventory Checklist.

First aid kits include:

Weatherproof Box, Tweezers, Adhesive strips, Triangular bandage, Antiseptic wipes, first aid cream, Burn Cream, Latex gloves, Dressing, Scissors, Abdominal Pad, Eye Wash, and Cold pack

#### **6.6 Document Management**

If after reading this program, you find that improvements can be made, please contact the Safety Director. We encourage all suggestions because we are committed to the success of our First Aid Program. We strive for clear understanding, safe behavior, and involvement from every level of the company.

#### **6.7 Personnel**

Amsys Energy has the ultimate responsibility for the First Aid Program. They have designated the Safety Director and the Human Resource Director to manage the First Aid Program.

### **6.8 EMERGENCY ACTION PLAN [EAP]**

#### **SCOPE**

The purpose of the Emergency Action Plan is to be prepared for any emergency that may be reasonably expected to occur at the workplace. Some examples of emergencies that may reasonably be expected to occur are medical emergency, fire, extended power loss, telephone bomb threat, and severe weather and natural disaster.

As needed, a written site specific EAP shall be developed, communicated, and made readily available for employees to review. The written EAP shall address the following potential emergency scenarios:

- Cell site emergencies created and/or caused by the work scope being performed (injury, property loss, process interruption).
- Natural disasters, inclement/severe weather (tornadoes, hurricanes, earthquakes).
- Cell site (caused by work scope), automobile, and equipment fires.
- Public demonstrations or civil disturbances affecting work.
- Procedures for reporting of emergencies by all employees.
- Appropriate first aid and CPR training for designated employees.
- Timely notifications to appropriate law enforcement authorities, building owners/superintendents, and Amsys Energy in the event of any cell site emergency.
- Appropriate security measures to protect employees in potentially unsafe work locations.
- Building evacuation routes (the location of safe exits and evacuation routes for every work site location) and a process for the accounting of personnel.

## **RESPONSIBILITY**

It is the responsibility of the Safety Director and the Human Resources Director to implement an Emergency Action Plan based on reasonably expected occurrences.

## **EMERGENCY PERSONNEL**

Employees may contact personnel below if they need more information on this Emergency Action Plan or information regarding their duties under this Emergency Action Plan.

Amsys Energy Action Plan is in writing, kept in the workplace and available to employees for review. However, if Amsys Energy, has fewer than 10 employees, this Emergency Action Plan is communicated orally.

### **Emergency Plan Coordinator (EPC) for the facility.**

The Emergency Plan Coordinator for Amsys Energy must be responsible to work with higher level employees, such as supervisors or CEO's to make sure this emergency action plan is kept up to date. Supervisors and/or managers or their designees are responsible to train people within their area of responsibility on this plan when they are assigned to a job, when their responsibilities under the plan change, or when this plan changes.

## **EVACUATION ROUTES**

Evacuation route maps have been posted in each work area. The following information, at a minimum, is noted on these evacuation maps:

- Emergency exits
- Primary and secondary evacuation routes
- Locations of fire extinguishers
- Fire alarm pull station locations
- Assembly areas

Site personnel should know at least two evacuation routes from their primary work area. Site maps are posted at the following locations: Office areas and in fabrication shops. After any evacuation all employees must be accounted for by work area monitors.

## **EMERGENCY REPORTING**

To report any emergency, including fire, medical, crime/violence, contact the emergency center by calling the following numbers:

Emergency Phone Numbers: EMS 911

Police 281-261-3950

Fire 281-879-7397

## **EVACUATION PROCEDURES**

In the event an evacuation is required, the employees shall be alerted by a distinct and recognizable horn alarm signal any by direct voice of communication. In advance, locate the nearest exit from your work location and determine the route you will follow to reach that exit in an emergency. Establish an alternate route to be used in the event your route is blocked or unsafe. On site management staff should brief any type of visitors to the emergency exit location before entering the facility.

The types of emergencies most likely to be encountered by employees are:

- Medical
- Fire
- Extended Power Loss
- Telephone Bomb Threat
- Severe Weather and Natural Disaster

## **MEDICAL EMERGENCIES**

In the event of a medical emergency, call for help by shouting. If you are unsure whether the situation is an emergency, call emergency medical services 911 (EMS). The dispatcher/operator will ask questions to determine whether it is an emergency and will assist you in providing appropriate care. Provide the following information to the dispatcher/operator:

- The nature of medical emergency
- The location of the emergency (address, building, room number, etc.)
- Your name
- The phone number from which you are calling

Do not move a victim unless it is absolutely necessary, such as when there is imminent danger from fire, explosion, electrocution, etc. Seek the assistance of personnel trained in CPR, first aid, and AED to provide any needed assistance prior to the arrival of the professional medical help.

## **Exit**

In the event of any emergency requiring evacuation, you will be advised by your supervisor if the evacuation is necessary. If this is the case, you should proceed to the nearest safe exit.

## **FIRE EMERGENCIES**

When fire is discovered:

- Activate the nearest fire alarm and call 911
- Notify the local fire department by calling 281-879-7397
- Notify site personnel about the fire emergency by word of mouth and sounding the emergency horn

Fight the fire only if all the following criteria are met:

- The fire department has been notified
- The fire is small and is not spreading to other areas
- Escaping the area is possible by backing up to the nearest exit
- The fire extinguisher is in working condition
- You are trained to use the extinguisher

Upon being notified about a fire emergency, all occupants in the facility must:

- Leave the building using the designated escape routes
- All employees will assemble in the parking lot
- Remain outside until the competent authority Fire Department announces that it is safe to re-enter

The following tasks must be carried out by the Safety Director:

- Disconnect utilities and equipment unless doing so jeopardizes safety

- Coordinate an order evacuation of personnel
- Perform an accurate headcount of personnel at the designated area
- Determine a method to locate missing personnel
- Provide the fire personnel with the necessary information about the facility and headcount information

Work area monitors must:

- Assure that all employees have evacuated the work area
- Report any problems to the Safety Director at the assembly area

Assistance to the physically challenged should:

- Assist all physically challenged employees during an emergency evacuation

## **EXTENDED POWER LOSS**

In the event of extended power loss to the facilities, certain precautionary measures must be taken depending on the location and environment of the facility.

1. The Safety Director will turn off unnecessary electrical equipment and appliances. Power restoration could cause a surge that damages electronics and effects sensitive equipment
2. In the facility is likely to experience freezing temperatures during a long-term power loss, the Safety Director will turn off and drain the following:
  - a. Fire sprinkler system
  - b. Standpipes
  - c. Portable water lines
  - d. Toilets
  - e. Other
3. Safety Director will add non-toxic antifreeze to drains to prevent drain traps from freezing
4. Safety Director will move equipment containing fluids that may freeze due to long term exposure to freezing temperatures with heated areas, and either drain the liquid or provide the equipment with an auxiliary heat source.

Upon the restoration of heat and power:

- Electronic equipment should be brought up to ambient temperatures before energizing to prevent condensation from forming on circuitry.
- After the heat has been restored to the facility and water has been turned back on, the Safety Director will check fire and water piping for leaks from freeze damage.

## **TELEPHONE BOMB THREAT CHECKLIST**

In the event of a telephone bomb threat, stay calm and be courteous. Listen and do not interrupt the caller. As you listen, fill out this checklist as fully as possible with observations about the caller. To keep the caller talking, pretend that you are having difficulty hearing them. If the caller seems agreeable to further conversation, ask questions, such as those listed at the bottom of the form.

## **SEVERE WEATHER**

When a tornado warning is announced, all employees should immediately go to their designated tornado refuge area. This is the main stair wells, and the lower level interior hallways. Move away from windows. All employees should stay in the tornado refuge area until given the all clear sign.

## **DURING AN EVACUATION**

Emergency exits should be marked by signage. You must always find the closest available exit to your location and proceed there. If time and conditions permit, secure your workplace and take with you important personal items that are easily accessible—such as car keys, purse, etc. Read and understand the following steps:

- Follow instructions from emergency personnel.
- Check doors for heat before opening and if the door is hot, DO NOT open it.
- Walk, DO NOT, run, push or crowd. Use handrails in stairwells and stay to the right.
- Keep noise to a minimum so you can hear emergency instructions
- Assist people with disabilities
- Unless otherwise instructed, move quickly away from the building towards the designated assembly point.
- Watch for falling glass or other debris.
- Keep walkways clear for emergency responders and vehicles.

If you have relocated away from the building, DO NOT return until notified that it is safe.

Evacuation may not be appropriate for all emergency situations. The situation may dictate, or emergency instructions may be given to shelter-in-place. Shelter in place means selecting an interior room(s) within your facility, or ones with no or few windows and taking refuge there. For example, this may be appropriate for active violence, severe weather, and hazardous material release.

Amsys Energy Safety personnel have been trained and are responsible to assist in a safe and orderly emergency evacuation.

## **RESCUE AND MEDICAL DUTIES**

It may become necessary in an emergency to rescue Amsys Energy personnel and perform some specified medical duties, including first-aid treatment. All employees assigned to perform such duties will have been properly trained and equipped to carry out their assigned responsibilities properly and safely. Generally, the Police Department and Fire Department provide these services.

### **Procedure for staff who remain to operate critical operations before they evacuate**

Some staff may need to not immediately evacuate in order to secure critical operations before evacuation. All individuals remaining behind to shut down critical systems or utilities shall be capable of recognizing when to abandon operation or task. Once the property and/or equipment has been secured, or the situation becomes too dangerous to remain, these individuals shall exit the facility by the nearest escape route as soon as possible and meet at a designated area specified by upper management or the emergency coordinator.

### **Employee accountability procedures after evacuations**

The supervisors or designated personnel in charge must ensure all other personnel evacuate. Check all areas, accounting from upper management to lower level employees. Confusion in areas can lead to delays in anyone trapped in the facility or unnecessary search and rescue operations. Consider taking a head count after evacuation of staff after evacuation. The names and last known locations of anyone not accounted for should be passed on to the official in charge. No one is to re-enter the facility for any reason until the emergency responders or other responsible agency has notified us that the facility has been cleared for entry.

## **FIRE EXTINGUISHERS**

In most cases employees are at less risk if they evacuate rather than use fire extinguishers. Fire extinguishers are available, yet we do not have an exception that people utilize fire extinguishers in the event of a fire. If you are going to use a fire extinguisher, you must be trained annually, and they only be used for small fires.

Fight the fire only if:

- The Fire Department has been notified
- The fire is small and is not spreading to other areas
- An escape route is available.
- The fire extinguisher is in working condition and personnel are trained to use it.

Your name: \_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_\_

**Caller's identity:**

Sex: \_\_\_Male \_\_\_Female      Approximate Age: \_\_\_\_\_

Likely origin of call: \_\_\_Local \_\_\_Long distance \_\_\_Cell Phone

VOICE CHARACTERISTICS:	SPEECH:	LANGUAGE CHARACTERISTICS:
<input type="checkbox"/> Loud high pitched <input type="checkbox"/> Raspy Intoxicated <input type="checkbox"/> Soft <input type="checkbox"/> Deep <input type="checkbox"/> Pleasant <input type="checkbox"/> Other <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Fast <input type="checkbox"/> Distinct <input type="checkbox"/> Stutters <input type="checkbox"/> Slurred <input type="checkbox"/> Slow <input type="checkbox"/> Distorted <input type="checkbox"/> Nasal <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Excellent <input type="checkbox"/> Fair <input type="checkbox"/> Foul <input type="checkbox"/> Good <input type="checkbox"/> Poor <input type="checkbox"/> Other
<p style="text-align: center;"><b>ACCENT:</b></p> <input type="checkbox"/> Local <input type="checkbox"/> Foreign <input type="checkbox"/> Not local <input type="checkbox"/> Region:	<p style="text-align: center;"><b>MANNER:</b></p> <input type="checkbox"/> Calm <input type="checkbox"/> Rational <input type="checkbox"/> Coherent <input type="checkbox"/> Deliberate <input type="checkbox"/> Righteous <input type="checkbox"/> Angry <input type="checkbox"/> Irrational <input type="checkbox"/> Incoherent <input type="checkbox"/> Emotional <input type="checkbox"/> Laughing <input type="checkbox"/>	<p style="text-align: center;"><b>BACKGROUND NOISE:</b></p> <input type="checkbox"/> Factory <input type="checkbox"/> Machines <input type="checkbox"/> Music <input type="checkbox"/> Office <input type="checkbox"/> Street <input type="checkbox"/> Traffic <input type="checkbox"/> Trains <input type="checkbox"/> Animals <input type="checkbox"/> Quiet <input type="checkbox"/> Voices <input type="checkbox"/> Airplanes <input type="checkbox"/> Party <input type="checkbox"/> Other

**Questions to ask:**

When will it go off? Certain hour: \_\_\_\_\_ Time Remaining: \_\_\_\_\_

Where is it located? Building: \_\_\_\_\_ Area: \_\_\_\_\_

What kind of bomb? \_\_\_\_\_

What kind of package? \_\_\_\_\_

How do you know so much about the bomb? \_\_\_\_\_

What is your name and address?

If the building is occupied, inform the caller that detonation could cause injury or death.

**At the end of the call:**

- Activate a malicious call trace.
- Hang up the phone and do not answer another line
- Choose “same line” and dial \*57. Listen for confirmation announcements and hang up.
- Call Pat Coveney at 713-501-1092 and provide information about the call.
- Determine whether the caller appeared familiar with the plant or building by their description of the bomb location, if any was given. Communicate this as well
- Write out the message in its entirety and any other comments on a separate sheet of paper and attach it to the checklist
- Notify your supervisor immediately

## **SEVERE WEATHER AND NATURAL DISASTER**

The following items summarize basic steps to take during natural disasters.

### **Tornadoes:**

- When a warning is issued by sirens or other means, seek inside shelter
- When choosing a shelter, the following options are preferable:
  - Small interior rooms without windows on the lowest floor
  - Hallways away from doors and windows on the lowest floor
  - Rooms with no windows constructed with reinforced concrete, brick or block.
- Stay away from outside walls and windows
- Use your arms to protect your head and neck
- Remain sheltered until the tornado threat is announced to be over.

### **Floods:**

- If indoors:
  - Be ready to evacuate, as directed by the National State, County, City, or Civil Authorities
  - Follow the recommended primary or secondary evacuation routes.
- If outdoors
  - Climb to high ground and stay there
  - Avoid walking or driving through flood water
  - If your car stalls, abandon it immediately, and climb to higher ground

### **Hurricanes**

- The nature of a hurricane provides for more warning than other natural and weather disasters. A hurricane watch is issued when a hurricane becomes a threat to a coastal area. A hurricane warning is issued when hurricane winds of 74 mph or higher or a combination of dangerously high water and rough seas is expected in the area within 24 hours.
- Once a hurricane watch has been issued:
  - Stay calm and await instructions from National, State, County, City, or Civil Authorities.
  - Monitor local TV and radio stations for instructions
  - Move early out of low-lying areas or from the coast and plan to stay, secure the building, move all loose items indoors and boarding up windows, and openings.
  - Collect drinking water in appropriate containers.
- Once a hurricane warning has been issued:
  - Be ready to evacuate as directed from National, State, County, City, or Civil Authorities
  - Leave areas that might be affected by storm tide or stream flooding.

- During a hurricane:
  - Remain indoors
  - When choosing a shelter, the following options are preferable:
    - Small interior rooms without windows on the lowest floor
    - Hallways away from doors and windows on the lowest floor
- Rooms with no windows constructed with reinforced concrete, brick, or block

## **7.0 DEFINITIONS**

<b>Term</b>	<b>Definition</b>
<b>A</b>	
Acceptable entry conditions	The conditions that must exist in a confined space to allow entry and to ensure that employees involved with confined space entry can safely enter and work within the space.
Authorized entrant	An employee who is authorized by the employer to enter a confined space.
Acceptable access conditions	Conditions that shall exist before a tower owner or Amsys Energy will grant permission to climb.
Anchorage	A secure point of attachment for lifelines, lanyards, or deceleration devices, and which is independent of the means of supporting or suspending the employee.
Attendant (confined space)	An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the Contractor's confined space program.
Authorized person	A person approved or assigned by the Contractor to perform a specific type of duty or duties or to be at a specific location or locations at the jobsite.
ANSI	American National Standards Institute
<b>B</b>	
Barricade	A device that identifies a hazard and its parameters.
Blanking / Blinding	The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
<b>C</b>	
Conductive testing	Geophysical method used to trace cables and water and gas distribution lines using audio frequency.
Climber	Any person who ascends to a height of more than 6 feet.

Combustible gas	A gas that burns when mixed with air or oxygen and an ignition source.
Competent Person	One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate such hazards and conditions. <b>This person is specifically identified by the employer based on required training and prior experience.</b>
Competent Climber	Defined as a person who has met or exceeded all the training requirements outlined in this S&H Program and is authorized by his/her employer to perform elevated work.
Connector	A device that is used to couple (connect) parts of a PFAS together. It may be an independent component of the system (such as a carabineer), or an integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).
Cutover	The process of disconnecting existing lines, connecting to new equipment, and reconnecting existing facilities.
<b>D</b>	
DC Power	Any direct current electrical system
Designated person	A person who possesses specialized abilities in a specific area and is assigned by the Contractor to do a specific task in that area.
DOT	Department of Transportation
<b>E</b>	
Effectively grounded	The term means intentionally connected to earth through a ground connector or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent buildup of voltages which may result in undue hazard to connected equipment or to persons.
EME	Electromagnetic Energy: That portion of the spectrum commonly defined as the radio frequency region, which for the purpose of this S&H Program shall include the microwave frequency region. Also called Electromagnetic Radiation.
Entry (Confined space)	The action by which a person passes through an opening into a confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry permit	The written or printed document that is provided by the employer Contractor to allow and control entry into a confined space and that contains the information specified in this S&H Program.
Entry supervisor (Confined space)	The person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.
<b>F</b>	
Floor hole	Any gap or void measuring 12 inches (30.5 cm) or less at its largest dimension, but more than 1 inch (2.5 cm) at its smallest dimension, in any floor, roof, or platform through which materials, but not persons, may fall, such as a belt hole, pipe opening, or slot type opening.
Floor opening	Any gap or void measuring 12 inches (30.5 cm) or more at its smallest dimension in any roof, floor, or platform through which a person could fall.
<b>G</b>	
Guarded	Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.
Ground-fault circuit interrupter (GFCI)	A device for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the over current protective device of the supply circuit.
<b>H</b>	
Hazardous atmosphere	An atmosphere that will be or is injurious to occupants by reason of oxygen deficiency or enrichment.
Hazardous substance	A substance which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, an irritant, or otherwise harmful is likely to cause injury.
<b>I</b>	
Isolation (confined space)	The process by which a confined space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tag out of all sources of energy; or blocking or disconnecting all mechanical linkages.

Immediately dangerous to life or health (IDLH)	Any condition that poses an immediate threat of loss of life, will result in irreversible or immediate severe health effects, or will result in eye damage, irritation, or other conditions that will impair escape from a confined space.
<b>J</b>	
Job Safety Analysis (JSA)	A planning and assessment process that focuses on job tasks to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment, breaking the job down into its component steps. This is best done by jointly analyzing each step-in order of occurrence with the effected employee. Next, each step is evaluated to determine the hazards and at-risk behaviors that exist or that might occur; then develop the appropriate control measures to mitigate the identified hazards. Finally, the job steps, hazards, and control measures are reviewed with the employees before they perform the job.
<b>L</b>	
Label	Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.
Lanyard	A flexible line of rope, wire rope, or strap, which is used to secure the body belt/harness to a deceleration device, lifeline, or anchorage.
Lockout/Tag out	The secure placement of a tag or lock on an energy isolating device, disconnect switch, or circuit breaker to indicate that the equipment or system being controlled may not be operated until the tagging/locking device is removed. Push buttons, selector switches, and other control circuit devices are not energy isolating devices.
<b>M</b>	
Maximum Intended Load	The total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.
<b>O</b>	
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.
<b>P</b>	
Powder actuated tool	A tool or machine, which drives a stud, pin, or fastener by means of an explosive charge.
<b>Q</b>	

Qualified person	One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
<b>R</b>	
Radiation protection guide	Radiation level that should not be exceeded without careful consideration of the reasons for doing so.
<b>S</b>	
Safety factor	The ratio of the ultimate breaking strength of a member or piece of material or equipment to the actual working stress or safe load when in use.
S&H	Safety and Health
Suitable	That which fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.
Snap-hook	A connector comprising a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap-hooks are generally one of two types:  1. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection, or  2. The non-locking type with a self-closing keeper, which remains closed until pressed open for connection or disconnection.
<b>T</b>	
Tie-off	The act of an employee, wearing personal fall protection equipment, connecting directly or indirectly to an anchorage. It also means the condition of an employee being connected to an anchorage.
<b>U</b>	
Utility Identification Services	Underground utilities mapped by inducing a signal onto a subsurface utility and tracing the signal as it moves along or within the utility.
<b>W</b>	
Wall opening	A gap or void at least 30 inches high and 18 inches or more wide in any wall or partition through which persons may fall to a lower level, such as doorways, chute openings, or rigging openings.

Weatherproof	So, constructed or protected that exposure to the weather will not interfere with successful operation. Rainproof, rain tight, or watertight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice, dust, or temperature extremes are not a factor.
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## 8.0 APPENDIX A – ALL FORMS



## **Employee Safety and Health Program**

### **Employee Acknowledgement**

This will certify that I have received the Amsys Energy Employee Safety and Health Program and will make myself familiar with its contents. I understand that it is not a binding contract, but a set of rules and guidelines to be followed in the interest of accident prevention. I understand that I am responsible for following the rules set forth by this manual. I have also been made aware that if I should violate a safety rule that I may be subject to disciplinary action up to termination. I further understand that my signature to this document does not necessarily express my agreement or disagreement with these rules, but it is an acknowledgment of my receipt of the rules and guidelines set forth in the Amsys Energy Safety and Health Program.

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Date: \_\_\_\_\_



**INCIDENT REPORT FOR Amsys Energy**

DATE \_\_\_\_\_

TIME \_\_\_\_\_ AM / PM

INCIDENT TYPE      GAS    POWER    FIBER    WATER    SEWER    OTHER

DIG TICKET NUMBER \_\_\_\_\_

JOB NUMBER \_\_\_\_\_

JOB COORDINATOR \_\_\_\_\_

ADDRESS OF INCIDENT \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

GPS – LATITUDE, LONGITUDE \_\_\_\_\_

SUPERVISOR NAME \_\_\_\_\_

CREW NAMES \_\_\_\_\_

STEPS TAKEN TO REPORT INCIDENT \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SUMMARY OF INCIDENT \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DOCUMENTS AVAILABLE:    Y / N