

Safety Handbook

For Contractors and
Contractor Employees
or Agents

January 2019

The logo for DTE Energy Services, featuring the letters "DTE" in a bold, white, sans-serif font. The logo is positioned in the bottom right corner of the cover. Behind the letters, there is a stylized sunburst graphic consisting of numerous thin, white lines radiating from a central point, creating a semi-circular shape that extends towards the top right corner of the page.

DTE

DTE Energy Safety Handbook

for contractors and
contractor employees
or agents



Safety comes before all else –
“ZERO ACCIDENTS”

Acknowledgement

Please Print Clearly

Contractor name

Contractor number

I have reviewed this handbook and the
STANDARDS OF SAFETY PERFORMANCE FOR
CONTRACTORS document with my employees.

Signature

Print Name

Date:

DTE Energy Safety Policy

At DTE Energy safety is a core value, so that no matter the priority or changing business focus, our commitment toward safety shall not be compromised. No job we do or service we perform is so urgent that we cannot take the time to perform each aspect of the job safely.

This handbook shall not relieve the contractor or its employees, agents, or subcontractors of their responsibility for safety and exercise of due care. The information contained in this handbook is not to be taken as a complete guide to all the safety rules or safe work practices. Instead, it is to be taken as one reference source for many of the safety rules and procedures that will help the contractor achieve good safety performance. The contractor will also comply with all applicable federal, state and / or local regulations. In case of conflict among these regulations, the most stringent shall apply.

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I. Instructions Before Starting Work

A. Periodic Meetings

The contractor must attend periodic meetings for the purpose of reviewing facility safety rules and procedures, OSHA regulations and general awareness items. This meeting must be attended by top level managers of the contractor company as well as the appropriate union representative(s).

B. Pre-Mobilization Safety Meeting

The contractor must schedule a pre-mobilization safety meeting with the owner's contract administrator unless specifically excused in writing by the owner's authorized contract administrator. This meeting, between the owner's entity requesting contract services and the contractor's representative(s), is to review the scope of the work and the safety requirements applicable to the work. The contractor's supervisor is responsible for obtaining information regarding special hazards, precautions necessary to perform the work in a safe manner and the owner's site-specific safety rules/procedures.

The contractor representative, by signing the pre-mobilization review meeting form, agrees to review the information with the appropriate contractor employees/subcontract employees.

II. Conduct

A. The contractor agrees to advise its employees and the employees of subcontractors and agents ("workers") that; 1) it is the owner's policy to prohibit the use, possession, sale, and distribution of alcohol, drugs, or other controlled substances at the workplace and to prohibit the presence of an individual with such substances in their body for non-medical reasons; 2) entry onto the owner's property constitutes consent to an inspection of the worker's vehicle and personal effects when entering, while on, or upon leaving the property; and 3) any worker who is found in violation of the policy or who refuses to permit inspection will be removed and barred from the property.

B. The contractor (*and subcontractors*) will be required to institute a drug and alcohol screening program such that no worker(s) are assigned or reassigned unless such worker(s) have been screened for drug or alcohol abuse within two weeks of employment and the screen has proven negative in accordance with applicable drug and alcohol testing standards. In the absence of regulatory standards, the Safe2Work Drug and Alcohol test, or "MUST", "MOST", or DOT drug and alcohol test or their equal are mandatory for all building and construction related trades on all DTE Energy projects at all times.

The contractor will be responsible for and will monitor pre-assignment drug testing of the workers including

subcontractors involved in accomplishing all work and extra work included in the contract. The contractor will confirm such pre-assignment drug testing of the workers by furnishing, upon request, a completed and signed certification that each worker assigned to the job has been successfully screened for drug abuse. Additionally, the owner may request that contractor employees be randomly screened for specific drugs and/or alcohol.

- C. Failure of any worker to comply with the provisions set forth in this handbook, the Standards of Safety Performance for Contractors, and the owner's site specific safety rules will be subject to removal from the work site at the owner's sole discretion. It is the responsibility of contractor supervision to provide this information to workers in a manner that can be understood by each worker. The owner will not be responsible for payment of the violator's time. Failure of the owner to exercise this provision does not relieve the contractor of the obligation to ensure every worker complies with the owner's requirements.

III. Personal Protective Equipment

General

Each worker and his or her supervisor must ensure the required personal protective equipment (*PPE*) is provided and used properly. All PPE is to be supplied by the contractor. The workers are prohibited from using the owner's PPE.

Care and Use of Equipment

All personnel using PPE shall routinely inspect the equipment to verify the equipment is not defective or damaged. Manufacturer guidelines must be adhered to. Defective safety equipment shall be removed from service and rendered unusable.

Safety Hard Hats

Approved safety hard hats must be worn where required as designated by the organizational unit directive. Safety hard hats must meet the requirements of ANSI Z89.1, Class E-Hard Hat Protection (*marking inside hard hat*). Inspect the suspension prior to use. UV light, dirt, grease, age, etc. could affect the hard hat's integrity.

Hand Protection

Gloves should be worn whenever the potential for hand injury exists. Consideration must be given to prevent burns, abrasions, pinching, and to provide protection from electric shock, etc.

Hair Protection

Where there is danger of hair entanglement in moving equipment or exposure to ignition, steps must be taken to keep the hair close to the body, or covered.

Safety Shoes

For maximum foot protection, workers should wear safety shoes with toe protection and slip resistant soles. Suitable work shoes are defined as having durable soles and substantial leather upper tops that can be securely fastened or tied. Soft canvas, nylon, athletic or cloth type footwear are neither acceptable nor permitted in an industrial work environment.

Hearing Protection

At a minimum, hearing protection must be worn where signs indicate hearing protection is required, or where equipment exceeds acceptable noise limits. The contractor shall also provide hearing protection in accordance with their responsibilities under the Michigan Occupational Safety and Health Administration (*MIOSHA*) or the Occupational Safety and Health Administration (*OSHA*) hearing conservation requirements.

Eye Protection

At a minimum, eye protection with side shields must be worn in areas designated by the owner and where the contractor has determined a potential eye hazard exists. At a minimum, safety glasses must meet ANSI Z87.1 standards for Occupational Eye Protection (*marked as such on the glasses*). Consult with location management to ensure eyewear compliance at their location. Additional eye protection (*e.g. goggles, faceshields, close-fitting eyewear*) must be considered

when significant hazards from sources such as particles, dust, electricity, heat, or chemicals are present.

Respiratory Protection

Where the contractor requires respiratory protection equipment, employees must receive training, a medical evaluation and a respirator fit test. Prior to use, the contractor must select the appropriate respirator for the work to be performed. The contractor must have a written respirator program that complies with MIOSHA/OSHA requirements.

IV. Reporting Injuries and Illnesses

Contractors must submit a written report within 24 hours to the contract administrator, whenever a worker is injured, is involved in an incident with property damage or is involved in an event with serious injury potential (*near miss*). The contractor is to complete the “Contractor Notification of Accident Report” (*LE42*), following the instructions at the top of the document. The contract administrator must be notified of fatal injuries or injuries requiring hospitalization within 30 minutes of the incident. The contractor is to make available at the owner’s request all reports, findings or other documents relating to the contractor’s investigation of the incident. The owner reserves the right to conduct its own investigation on any incident occurring on the owner’s property. Such an investigation may include, but not be

limited to, inspection of the incident site, interviews of workers, the procurement of physical evidence, and employee attestments deemed necessary by the owner. Accidents involving death or injury shall be cause, upon the owner's discretion, to have the contractor made ineligible for further work pending review by the owner's safety and health representative(s).

V. Housekeeping

Housekeeping shall include all activities related to controlling the cleanliness of facilities, materials, and equipment, and to the protection of equipment. It shall also include fire prevention and protection, including disposal of combustible materials and debris, and access to all work areas. Work areas shall be kept clean and orderly so that work activities can proceed in an efficient manner.

Inspections of work and storage areas must be performed periodically by the responsible contractor supervision to verify adequate implementation of housekeeping and cleanliness requirements.

Avoid unnecessary clutter in the work areas. Do not leave or place materials where they may cause a tripping hazard or where they may fall and strike a person below.

Clean up all work areas as soon as the job is completed. If the job extends for greater than one shift, the area must be cleaned at the end of each shift.

VI. Protective Tagging System

The protective tagging system is designed to provide a level of safety equivalent to that of a lockout program for workers at these installations in conformance with provisions of the MIOSHA Act. Proper use of the protective tagging system will protect each person working on or near equipment from the unexpected energizing, start-up, or release of stored energy.

Protective tagging is required whenever a person performing maintenance or servicing can be injured from hazardous energy release or unexpected start-up.

Exceptions:

- Minor tool change or adjustment (*such as changing a tool bit*)
- Simple cord and plug equipment with no stored energy where the plug will remain under the exclusive control of the person performing the work.

Any tampering or non-compliance with the protective tags and/or tagging procedure may result in the contractor and/or its worker(s) being promptly removed from DTE Energy property.

i. Roles and Responsibilities

The Operating Authority is the person who is authorized and qualified to apply protective tagging and its procedures.

Before work can proceed on DTE Energy equipment, the operating authority at the site shall shut down, install tag(s) and may place protective barriers as required for the safety of personnel working in the area.

A qualified protection leader shall review the protection provided by the operating authority at the site and agree that effective protection has been provided before work is allowed to commence.

The protection leader is the employee who is qualified to receive protection on equipment or systems to do work. The protection leader has responsibility for keeping all persons working under this protection informed of the limits of the protection, including any changes in the protection that may occur.

The job leader/ crew leader is responsible for receiving and understanding each work assignment and communicating with the protection leader, acknowledging and understanding the protection provided. DTE Energy and contract employees are responsible for following all the provisions of the Protective Tagging System.

Contractor supervision is responsible for ensuring that each contract employee understands and complies with the established procedures, including the use of the crew member record (CMR).

All persons shall work within the limits of the protection provided. Any violation of protection limits may be cause for immediate removal from the site.

ii. Crew Member Record (CMR)

The Crew member record is a form developed and used by DTE Energy to keep track of job/crew leaders and crew members while working under the protection provided for the protection leader.

Crew Member Record (CMR)							RSD / Work Order	
Protection Leader _____		(Print Name)					Date _____	
Crew Member Name (Print)	Job/Crew Leader	On Crew ¹		PPR Notification (Start) ¹		PPR Notification (End) ¹		
		Time	Signature	Time	Signature	Time	Signature	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

The crew member record will be filled out and signed by each member of the protection leader's crew assigned to the work. Signing the CMR is indication that the job has been explained, including the limits of protection, adjacent hazards, etc. This form is signed by the crew members each day, at the beginning of every shift, before the start of the work. Each crew member will also sign off the CMR at the end of every shift, when work is completed, or when requested by the protection leader and/or assigned to another job. A new CMR is used for each workday.

Before the protection leader can request the release or removal of his protection, all crew members must be notified

and sign off the CMR. The protection leader is responsible for verifying the work that has been done prior to the completion of the job, or the end of the day, etc. All crew members must sign off the CMR before the protection leader can clear his protection with the operating authority.

Upon completion of the job, this completed form is kept on file with other documents related to the protective transaction for a minimum of three years.

iii. Protective Tags (*Red Tags*)

A Red Tag on a piece of equipment is an order NOT to operate that piece of equipment or component.

These protection procedures shall apply to all work performed on equipment.

The Red Tag with white lettering is known as the System Supervisor's tag and is placed and removed by orders of the System Supervisor.

The white tag with red lettering (*most commonly used*) is known as the Operator's tag and is placed and removed by the shift operating authority or delegate.

Protective Tags state in prominent letters, "**Danger – Do Not Operate.**" Colors are either red letters on a white background or white letters on a red background.

Either Protective Tag means that the switch, valve, or other equipment that it is attached to, shall not be operated, moved, or removed under any circumstances.

Only the Operating Authority at the site is authorized to install or remove the protective tag(s).

DTE Energy Protective System Tags



Form No. DE 963-1024



Form No. DE 963-1021

International Transmission Company (ITC) protective system tags

(used in the same manner as DTE Energy Tags)



VII. Protective Barriers

Protective barrier material may be rope, railings, baffles, red or orange key bolts, test stud caps, barricades, walls, or electric insulating barriers.

Protective barriers shall be placed at such a height and position as to prevent personnel from entering areas that are hazardous. The erection of the barrier must take into account the physical layout of the equipment, the nature of adjoining equipment, aisle ways, thoroughfares, and operating equipment.

Barriers should be placed:

- A minimum of 10 feet from open excavations greater than 5 feet deep; otherwise, a minimum distance equivalent to depth of the excavation.
- A minimum of 10 feet from overhead work on scaffolds or ladders.
- A distance from the hazard sufficient that a fall at the barrier rope will not result in the individual coming in contact with the hazard.

Protective barrier ropes come in four specific colors that indicate the types of hazards involved. The first three are safety barriers. The fourth is a radiation barrier governed by its own requirements.

Never use safety rope for anything other than its intended purpose.

The operating authority is responsible for placing or removing industrial safety barriers. When requested, the operating authority may permit placement of yellow barrier rope by a work group that identifies the need and requests permission. Caution tape may be used when permission is granted by the operating authority.

DTE Energy Safety Barrier Ropes



ORANGE – Designates electrically energized equipment. This barrier rope shall be used only to exclude people from approaching energized electrical equipment. It shall not be used for any other purpose.

Only the operating authority may install or remove orange barrier rope.



ORANGE AND WHITE – Are used by test engineers to warn persons from entering electrically energized areas. The test engineer or his delegate shall install or remove orange and white barrier rope.



YELLOW – Designates caution and marks physical hazards. Yellow barrier rope may be installed by anyone as long as the Operating Authority is notified immediately of the barrier installation.



MAGENTA AND YELLOW – designates radiation hazards. If a radiation area is posted, the requirements for entry must be clearly posted.

ITC Safety Barrier Ropes



RED, BLACK AND WHITE - Used to identify the work areas containing de-energized equipment and to prevent an individual from approaching energized equipment.



ORANGE AND WHITE - Indicates that equipment is under test at high potential or current.



PURPLE AND YELLOW - Indicates the possibility of a radiation hazard.



YELLOW - Used to isolate physical, chemical or gaseous hazards.

NO PERSON IS PERMITTED TO CLIMB OVER, REACH THROUGH, OR PASS UNDER SAFETY BARRIER ROPES. PASSING OBJECTS OVER OR UNDER SAFETY BARRIER ROPES IS PROHIBITED.

General Rules

Protective safety and radiation barrier ropes are not to be used to “tie-off” carts, cylinders, or as a tag line for material (*use white rope for this purpose*).

A sign is to be placed indicating the **HAZARD(s)**, purpose of the work or **WHY** isolated, and **WHO** placed the barrier. The safety rope barrier sign has been created to provide a convenient means of ensuring that the necessary information is detailed.

All safety barriers must be placed with knowledge and permission of the operating authority.

For guarding floor openings, rope barriers are sufficient as long as they are placed 6 feet from the opening (*when possible*) and continuously attended. If you are the attendant and must leave the area for any length of time, the rope barrier must be converted to an OSHA standard guard railing configuration, (*consisting of posts, top- and mid-rails at 42 and 24 inches high and capable of withstanding 200 pounds of single point loading in any direction*) and a toe board.

VIII. Electrical Safety

All contractors performing electrical work at DTE Electric facilities related to generation, transmission, and distribution must adhere to the requirements of OSHA 1910.269.

Information Transfer per OSHA 1910.269¹

In accordance with OSHA 1910.269(c), the following information about the Characteristics and Conditions of electric power generation, transmission, or distribution installations and related equipment, operated by DTE Energy, is provided to all DTE Energy Contractors who perform work on DTE Energy installations or equipment that is covered by OSHA 1910.269.

In the event that the information described in this section is not received by a DTE Energy contractor, the contractor must contact the DTE Energy contract administrator **PRIOR TO** beginning work. The DTE Energy Contract administrator will determine the appropriate means by which the information will be provided.

DTE Energy contractors who are subject to OSHA 1910.269 and receive information described in this section from DTE Energy are required to provide the same information to their subcontractors and may, upon request, be required to provide to DTE Energy written verification of the Transfer of Information to subcontractors.

Before work begins, contractors must advise DTE Energy of any unique hazardous conditions posed by the contractor's work. Also, contractors must advise the DTE Energy of any unanticipated hazardous conditions found, while the contractor's employees are working, that the DTE did not

¹ References to OSHA 1910.269 also include any equivalent MIOSHA regulation(s).

previously identify. Contractors must provide this information to DTE Energy within 2 working days after discovering the hazardous condition.

In general the required information transfer will be provided in the form of a job package for scheduled work and through the pre-job brief for emergent work. In the event that the required information is not received the contractor must contact their facilitator immediately prior to beginning work.

Characteristics of the System Related to Safety:

The nominal voltages of lines and equipment [1910.269(a)(4)(i)]

The nominal system voltage where work will be performed shall be provided or reviewed prior to beginning work. In the event this is not available, the contract administrator or identified DTE Energy representative and contractor shall determine the best assessment method to assure the nominal voltage is known prior to beginning work.

The maximum switching-transient voltages [1910.269(a)(4)(ii)]

Maximum switching Transient Over Voltages (TOV) are utilized to determine Minimum Approach Distances (MAD) [Appendix B of 1910.269]. DTE Energy and the associated interconnected utilities have performed dynamic studies to determine the TOV expected across the DTE Energy Electrical System. For convenience these numbers have been converted to the MAD values that shall be used by DTE Energy contractors when performing work on the DTE Energy Electrical System. **MAD table is included in the DTE Electrical**

Safety Standard. Contact your contract administrator to be given access to the latest electronic version of this document.

The presence of hazardous induced voltages [1910.269(a)(4)(iii)]

Adjacent energized lines and equipment may introduce hazardous induced voltages on equipment believed to be de-energized. All DTE Energy contractors must be aware that this hazard may exist and perform the necessary assessment to assure this hazard is mitigated by the use of protective transactions, proper PPE, and installation of protective grounds as required.

The presence of protective grounds and equipment grounding conductors [1910.269(a)(4)(iv)]

The authorized DTE Protection Leader on the job (*as defined by Policy EM5-3*) shall communicate when grounds need to be installed or removed per the requirements of EM5-3.

The locations of circuits and equipment, including electric supply lines, communication lines, and fire-protective signaling circuits [1910.269(a)(4)(v)]

Notification shall be made by DTE Energy to the contractor in the event that the nature of work may impact circuits identified by OSHA 1910.269(a)(4)(v) when existing prints and documentation are available to indicate the presence of the equipment. It is also expected that the contractor shall perform an assessment and discuss with the DTE Energy representative the best way to mitigate the impact on any

of the hazards posed by this equipment prior to performing the work.

Conditions of the Installations Related to Safety:

The condition of protective grounds and equipment grounding conductors [1910.269(a)(4)(vi)]

All DTE Energy contractors must perform an assessment of the existing grounding points and conductors prior to commencing work.

The condition of poles [1910.269(a)(4)(vii)]

DTE Energy contractors should inspect and test all poles prior to climbing, using the tests specified in OSHA 1910.269 Appendix D - Methods of Inspecting and Testing Wood Poles.

If a pole has previously been identified as being unsafe to climb or to work from, a red band or red x will be present on the pole, however, pole markings should not be relied upon as an indication of the pole integrity. It is the responsibility of the DTE contractors to ensure their employees are inspecting and appropriately testing pole integrity prior to climbing.

Environmental conditions relating to safety [1910.269(a)(4)(viii)]

Any known environmental conditions related to safety shall be communicated by contractors prior to commencing work as part of the job site assessment. It is also expected that contractors shall make a job site assessment to mitigate any environmental concerns related to safety.

For each employee exposed to hazards from electric arcs, the employer shall make a reasonable estimate of the incident heat energy to which the employee would be exposed. [1910.269(l)(8)]

Reasonable estimates for incident energy levels for all routine tasks performed have been calculated utilizing the recommendations of 1910.269 Appendix E. All DTE contractors shall utilize the appropriate working distances and arc rated clothing to perform these tasks. **Incident Energy level estimate task tables are included in the DTE Electrical Safety Standard. Contact your contract administrator to be given access to the latest electronic version of this document.**

The contractor must contact the DTE Energy contract administrator in the event that tasks must be performed outside of those identified in the Enterprise Electrical Safety Standard. The contractor shall work with the appropriate DTE Energy personnel to determine the reasonable incident energy levels and appropriate working distance associated with the task prior to beginning work.

Requested Information [1910.269(a)(3)(i)(D)]

Any other information (not covered above) that a contractor believes is necessary to the protection of the contractor's employees, and is known by DTE Energy, will be provided upon request by the contractor to the DTE Energy contract administrator.

Additional Information

Non-current-carrying metal parts. [1910.269(l)(11)]

Non-current-carrying metal parts of equipment or devices, such as transformer cases and circuit-breaker housings, shall be treated as energized at the highest voltage to which these parts are exposed, unless the DTE Energy employee or contractor inspects the installation and determines that these parts are grounded before DTE Energy employees or contractors begin performing the work

Opening and closing circuits under load. [1910.269(l)(12)]

All load break devices such as switches and breakers operated by DTE Energy employees are rated to safely carry, close into, or interrupt the load they serve. Adherence to DTE Energy operating and equipment application practices govern the proper use of all operating devices on the DTE Energy Electrical System.

IX. Excavation/Trenching

Prior to any digging, workers must verify the location of underground structures, piping and utilities in the area.

Proper personal protective equipment, based on the job, must be used. (See pp.6-9)

Sloping, shoring or trench boxes must be used anytime an employee works in an excavation greater than four feet deep. Special precautions are needed if water is in the excavation/trench.

Proper barriers and tagging, based on the job, must be used. When applicable, confined space procedures shall be followed.

Excavations must be monitored for atmospheric hazards when those hazards are likely to be present.

A qualified person shall inspect the excavation/trench and any support systems on an ongoing basis.

X. Fall Protection

Full body harnesses with shock-absorbing lanyard of less than six feet or retractable lanyard of any length are to be used where fall protection is required by governmental regulations.

Fall protection equipment is to be inspected prior to use. The equipment must be free of rips, tears, nicks, and deterioration. Lanyard snap hooks (*double release type only*) must work properly. At a minimum, use when working more than 4 feet (*General Industry Standard*) or 6 feet (*Construction Standard*) above the floor/ground, while having no handrails or means for eliminating a fall potential. Additionally, working/moving from a manlift, bucket truck, or boom requires the use of fall protection. The lanyard is to be fastened to approved fall protection points only. To assure your safety, attach the lanyard only to:

- Lines installed specifically for fall protection purposes
- Approved structural materials

- Connection points on lifts or buckets
- Scaffolds specifically designed to handle a fall protection device

A lanyard must be hooked according to the manufacturer's recommendations.

XI. Ladders

The location of the ladder and the type of work activity may require additional safety requirements. For example, a ladder positioned next to an opening would require fall protection. The type of work and the work environment also dictate the type of ladder to be used, (*e.g., metal ladders shall not be used where there is an electric shock potential.*)

Ladders must be inspected for wear or damage prior to use. Ensure the ladder is used as intended and within the designated specifications.

Avoid overhead obstructions when setting up a ladder. Ensure all ladders have appropriate feet and rest on a solid base.

Position the ladder properly. Good rules of thumb for ladder positioning are the use of the palm test.

- Stand with your arms out straight ahead.
- Place your toes against the bottom of the ladder.
- Make sure your palms touch the shoulder level rung or the 1:4 ratio formula:
- Place a ladder one foot out from a vertical surface for every four feet of ladder height.

Example: An 8-foot ladder is placed 2 feet from the vertical surface that it is leaned against.

- Stabilize a straight/extension ladder with a tie off near the upper support unless a co-worker stabilizes the ladder.

Keep a three-point contact when climbing or working on a ladder.

When on a ladder, maintain your center of balance by keeping your belt buckle inside the ladder rails.

On a stepladder, do not use the top or second from the top step. On an extension ladder, do not use the top 3 rungs.

When using an extension ladder, ensure the doggs are engaged prior to use.

XII. Scaffolds

When erecting scaffold at a height greater than 4 feet, personnel will use appropriate fall restraint equipment.

Only trained and qualified personnel shall erect, modify or tear down scaffold.

Scaffolding shall be erected so as not to interfere with equipment.

Scaffolding shall be sized to provide adequate working space for personnel and the task(s).

Toe boards and mid and top guard rails shall be installed on scaffolds.

Scaffolds over or near a walkway shall be securely screened from the toe board to the top guardrail.

A scaffold shall not be used unless recently inspected and a scaffold inspection tag is attached and verified before each shift.

All scaffold will be assembled using construction grade, medium quality scaffolding.

Access to scaffold platforms shall not require climbing over guardrails. Mid-rails will be omitted to provide access from a ladder, or a gate shall be used.

Scaffolds must be clean of debris and accumulations of materials before disassembly.

XIII. Roof and Above Ground Work

At the beginning of each job, before initially going on any roof, tank or vessel roof, the owner's representative must be contacted. The contractor must assess the condition of the roof prior to performing work and must evaluate potential exposure to electrical utilities. Certain roofs, (*i.e.*, *transite*, *resolite and galbestos*,) present special hazards due to their inability to bear weight.

The contractor must initiate additional safety practices when structural weaknesses are suspected regardless of the materials of construction.

Safety harness and fall protection systems must be worn while on any roof within the owner's facility unless an adequate safety plan has been developed and approved in writing by owner's representative.

No material shall be thrown or dropped from plant roofs unless owner's representative has granted prior written permission. When working overhead, the area below must be roped off with appropriate signage or other equivalent measures taken to protect workers in the area.

XIV. Cranes/Aerial Lifts and Rigging

Operators must be qualified on the cranes and the aerial lifts that they operate and know the clearance requirements for working near overhead-energized lines.

All other employees must be familiar with basic crane safety and also be aware of clearance requirements when directing crane movements.

General Procedures

At a minimum, all cranes, aerial lift devices and rigging/lifting devices must be inspected in accord with governmental regulations. Pre-operational inspections are to be conducted prior to use.

Operators must be trained.

Unauthorized persons shall not board cranes or aerial lifts.

No worker shall pass under a suspended load and no crane operator shall take a load over a person.

The travel path (*safety zone*) shall be established and controlled to prevent personnel from entering.

No crane or aerial lift shall be loaded beyond the rated capacity of the crane.

Side pulls are not permitted.

Crane operators must sound the horn or bell before and during crane movements.

The contractor is responsible for obtaining a copy of the owner's work on poles / aerial lift devices procedure, and adhering to the elements as it relates to the contractor employee.

Rigging

Riggers shall be qualified for the work they perform. All rigging must be done in accordance with accepted industry standards.

Chains, slings or wire ropes must be of sufficient diameter and strength to support the load.

All lifting devices shall be used within the specific rated capacity. All below-the-hook lifting devices shall be designed, tested and labeled before use.

Hoisting and lifting slings must be kept in good repair, free of damage or kinks.

All hand signals must be consistent with the standard ANSI hand signals.

With the exception of the stop signal, only one person shall direct the movement of a crane.

XV. Fire Protection

General Procedures

When welding, cutting or grinding, follow established hot work procedures, including fire watch and hot work permit.

Flammable and combustible liquids must be stored in proper containers and handled in accordance with regulatory requirements for bonding and grounding.

Accumulations of combustible trash (*oily rags, paper*) are often prime spots for fire ignition and are not permitted by the owner.

Maintain fire protection equipment in a fully operational state and only use for fire protection.

Report potential fire hazards to the immediate supervisor. Do not use flame or spark producing tools in areas where combustible gases or dusts exist. Exercise extra caution around coal transfer points due to increased dust levels.

Observe all “**no smoking**” signs.

Do not obstruct exit doors, stairs or walkways.

XVI. Compressed Gases

All cylinders must be properly and legibly labeled or stenciled as to contents.

MSDS sheets shall be available for all compressed gases stored on any site.

All cylinders not in use must have regulators, hoses, or torches removed, safety caps in place, stored in an upright position, and two parts of the cylinder secured to a substantial attachment point.

Cylinders containing flammable gases must be stored separately from combustible materials or segregated by at least 20 feet.

Oxygen and fuel gas cylinders shall be separated by a minimum distance of at least 20 feet, or by a 5 foot non-combustible fire barrier with a fire-resistant rating of at least one-hour.

Notify your supervisor if a cylinder is leaking; if possible, isolate and/or remove the cylinder to a safe location.

All cylinder valves shall be closed and lines bled whenever equipment is left unattended for any appreciable period of time.

Compressed gases or oxygen shall not be used for cleaning equipment, cleaning work areas, or blowing off material from personal clothing.

While moving cylinders, except when properly secured on approved cylinder carts, caps or valve protection devices shall be in place.

Before dismantling apparatus associated with compressed gas cylinders, the pressure shall be relieved.

Do not transport cylinders in passenger elevators. They may be transported in a freight elevator only when secured to a cylinder cart and capped.

XVII. Hot Work

The owner requires hot work procedures be followed to prevent fires during those times when burning, cutting, or other spark-producing activities must take place. The contractor must obtain site-specific procedures from the operating authority/company authority prior to initiating any hot work.

General Procedures

Always examine the possibility of accomplishing the work without spark or flame producing methods.

Other than welding shops, a hot work permit is required for all hot work. The permit must be completed in accordance with facility procedure.

The contractor is responsible for ensuring the area is safe and for obtaining the required hot work permit to begin work. The contractor shall inspect the area for flammable / combustible materials prior to the start of work.

Welding, cutting, or spark-producing operations shall not be performed unless a separation can be maintained between the combustibles and the ignition source.

Combustibles and ignition sources can be separated by distance (*move one or the other – 35 feet is the required distance*).

Combustibles and ignition sources can be separated by a barrier (*plating, fire blankets, etc.*).

Be aware that acid/caustic tanks or containers may have hydrogen or other explosive gases; therefore do not cut or weld without purging to remove all gas first.

Always be aware of where sparks fall when doing hot work. Use appropriate safeguards, such as welders' blankets, etc., to prevent sparks from reaching lower levels. Use shields to keep sparks from being carried to another location; e.g. guard equipment openings, holes in walls, doorways, and ventilation intakes.

Suitable fire extinguishing equipment must be kept ready for use while performing hot work.

When required, a “**fire watch**” must be posted and maintained.

XVIII. Cutting and Welding

Protective Clothing

Synthetic fibers are flammable and shall not be worn.

Avoid exposed skin or cuffs that could catch sparks.

Use the appropriate personal protective equipment (*PPE*) as determined by supervision.

Protect Others

Position yourself so that sparks go in the safest direction. Set up a screen to protect others from the welding flash. Check to see if sparks or molten particles could fall to a lower level or roll along the floor. Be especially careful about this when you are welding from a scaffold, ladder, or on a grating.

Compressed Gases

Practices for the storage and handling of compressed gas cylinders used in welding can be found in the compressed gases section of this handbook.

Flash arrestors are required on fuel gas lines as back flow prevention.

Remove gauges when the gas cylinders are not in use.

Toxic Fumes

Welding can create toxic fumes. Make sure you have proper ventilation. Keep as much distance as possible between the welding plume and your face. Wear the appropriate PPE.

Check the MSDS for the welding rod and components to be used.

Remove any paint before welding, burning, or grinding.

Remove any degreasers – when welded, chlorinated degreasers can produce phosgene gas, which is extremely toxic.

XIX. Confined Space

A confined space is an area with limited or restricted means of entry or exit that a person can actually enter with their body, and that is not designed for continuous human occupancy.

Working in these areas requires special training, precautions and permitting.

No worker shall enter an area meeting the definition of confined space unless properly trained and authorized.

Work that is performed in any company confined space, vault, or manhole will conform to the appropriate MIOSHA / OSHA standard, business unit procedures, job units, and safety rules that apply.

The contractor is responsible for obtaining a copy of the owner's confined spaces procedure, and adhering to the elements as they relate to the contract employee.

XX. Material Handling/Ergonomics

Material handling and storage may not seem potentially hazardous, however, there are unexpected dangers that can result in serious injury.

Evaluate the path of travel

Is there enough room to maneuver and stay clear of traffic?

Is there an unobstructed view; are walking surfaces level, wide enough, clean, clear, dry and free of other hazards?

(e.g. floor openings, open or loose grating, obstacles, loose or granular material, etc.)?

Is there a designated place to set the load down?

Is the work surface at the best handling height? Avoid crouching or reaching above the shoulders by using a step stool, ladder or platform. It is unsafe to stand on tiptoe or stacked objects.

Hand Trucks

If possible, it is better to push an object rather than pull. You may have a tendency to pull with one side of your body, but you will push with both sides for a balanced use of muscles.

Get help in moving loaded hand trucks up or down inclines or over small obstacles (e.g. *doorsills*) to avoid losing control.

Never overload hand trucks or dollies and always be sure the load is properly balanced and is safe to move without fear of tipping or turning over. If needed, secure the load with bungee straps, strap and ratchets, chains or similar devices.

XXI. Hazard Communication & Handling Hazardous Substances

General

Information regarding chemical hazards, effects, handling etc. is to be communicated as part of the pre job brief.

Prior to handling chemicals/hazardous substances, review the Material Safety Data Sheet (*MSDS*).

Contractors bringing chemicals on-site must provide a list of the products and MSDSs to the site environmental specialist prior to arriving at the job site.

Chemical storage areas must be properly marked and kept clean. All chemicals must be stored in appropriate, safe, properly labeled containers, including transfer containers.

Avoid inhaling chemical vapors or gases (e.g. *SO₃*, *flue gas*, etc.). Use the appropriate detection methods prior to entering the specific area (e.g. *SOX* monitors or confined space gas meter). If odors or vapors are detected, exit the area and notify appropriate personnel or your supervisor.

Rags that have been used with hazardous solvents or hazardous chemicals must be stored in closed metal containers that are properly labeled with the hazardous waste label.

When required by contractor supervision to work with hazardous solvents or chemicals in a confined space area such as a tank, proper respiratory protection and ventilation controls must be utilized.

Do not work on any container, vessel, or piping without verifying the contents and following proper isolation practices.

Material Safety Data Sheet (*MSDS*)

All workers need to be aware of the hazards when handling or working with chemical products/hazardous substances.

There are two sources of information, container labels and Material Safety Data Sheets (*MSDS*). Contractor supervision is to ensure *MSDS* and appropriately labeled containers available to contractor employees.

Paint Storage and Handling

Industrial painting operations can present significant hazards to both the painters and fellow workers in the work area. Specific precautions must be taken to control the hazards where painting activities are in progress.

If the surface to be painted requires preparation, determine if the current coating contains lead or if the material it is applied to contains asbestos. If either lead or asbestos is present, take the necessary precautions. (*See sections XXI and XXII.*)

Flammable solvents or paints shall be handled only in approved safety containers and shall be properly identified and labeled.

Brush or roller applications of paint shall be used when practical. Spray painting shall be used only after administrative and engineering controls are established.

Any confined area where spray painting, or surface treating or cleaning with solvents is being done shall be properly ventilated and guarded against all sources of ignition including smoking, welding, and burning.

Do not strike matches or go near open flame while wearing clothing contaminated with oil, gas, paint thinner, or other flammable substance.

Do not use gasoline as a cleaning or degreasing agent.

Safety Precautions with Solutions and Solvents

Kerosene, naphtha and other petroleum solvents are combustible liquids. When using these materials, particularly in spray or atomizing equipment, be sure there are no open flames or sparks in the vicinity. The work area shall be well ventilated.

Sparks and flames must be kept well away from areas where acetone is used and stored. The quantity of acetone kept outside of designated storage areas must be no more than is immediately needed. Containers of acetone must be kept tightly closed when not in use.

Transport small quantities of solvent only in approved, properly marked, safety containers. The container may require a grounding system to dissipate static charges.

Spills

All spills must be treated as hazardous unless known to be otherwise.

If a spill occurs or an employee discovers a hazardous spill:

- Contact supervision.
- **DO NOT** enter the spill area.

- Secure the area from immediate danger such as the removal of ignition sources.
- Notify other personnel in the immediate area. From a safe distance warn others to stay out of the area and isolate the area.

XXII. Asbestos

General

Prior to removing insulation or material suspected of containing asbestos, contractor supervision is to ensure that the material has been tested to determine if it contains asbestos. Insulating materials shall be presumed to be asbestos containing material until a laboratory analysis determines material to be non-asbestos, or the material is labeled non-asbestos.

Examples of materials that can contain asbestos include but are not limited to:

Pipe insulation, pipe coating boiler skin, gaskets, packing, floor tile, transite panels, roofing materials, cable insulation, wiring, sprayed on insulation, and brake linings. Only trained and qualified personnel can remove or disturb asbestos containing material (ACM). If any contractor employee suspects or is unsure as to whether materials contain asbestos, they are to immediately contact their supervisor for clarification.

Removing or Disturbing Asbestos

If ACM or potential ACM (*PACM*) must be removed or disturbed, the amount and reason for the work will determine which of four classes and the related work practices and training that will be required.

DO NOT enter an asbestos regulated area unless you are trained and meet the requirements for entry.

Signs and Labels

Regulated areas will have “**DANGER ASBESTOS**” signs prominently posted.

Any disposal bags containing ACM/PACM shall be double bagged and labeled.

Training and Certifications

Personnel must successfully complete the appropriate level and frequency of training to be able to abate and handle ACM/PACM, and must carry the original license card on their person.

XXIII. Lead

The following materials have frequently been found to contain lead:

- Painted surfaces with paint containing lead.
- Lead solder or older lead-soldered plumbing.
- Old lead bushings and lead-plate batteries.
- Older electric power cables with lead jacketing.

If content is unknown, treat as lead-containing.

A test is not required if the lead paint abatement procedure is going to be used. If not, a properly trained person must take samples for laboratory analysis.

When working on materials that have been determined to contain lead, wear the proper PPE.

Work practices that have the potential to generate lead dust or fumes include:

Cutting (*flame and mechanical*), welding, grinding, sand blasting, sanding machines, heat guns or other aggressive/intrusive methods.

Maintenance or demolition of painted structures or components (*e.g. breaking bolts*) with paint containing lead.

Lead paint is to be removed prior to working on a painted surface. Remove four inches beyond both sides of the edge of the cutting/welding line where feasible. Only trained personnel shall perform abatement work.

When the work being performed may cause lead particles or fumes to become airborne, air monitoring may need to be conducted to comply with governmental regulations.

Handle and dispose of the removed lead contaminated materials properly.

XXIV. Radiation

Radiation safety rules are prescribed by the company's radiation safety officer. The use and handling of Company-owned radiation-producing equipment is controlled by the company's radiation safety program and is strictly limited to individuals who have been trained and certified, or otherwise approved, in accordance with the program. The use and handling of contractor-owned radiation-producing equipment on company properties shall be in strict accordance with the conditions of the contract. Equipment containing a source of radiation shall not be handled, uncrated, or installed without prior clearance from the operating authority/company authority.

Radiation-producing equipment includes but is not limited to gauges installed in power plants that detect the presence or absence of coal or water, portable gauges used by construction inspectors, radiography cameras used by licensed contractors, and other laboratory instrumentation.



All radiation areas shall be roped off and marked conspicuously with signs that bear the radiation symbol (*shown above*) and the words “**Caution - Radiation Area.**” The barrier rope shall be magenta and yellow.

Only personnel authorized by the company's radiation safety program shall enter a company-established radiation area.

Only personnel authorized by contract conditions shall enter a contractor established radiation area.

When a radiation area no longer exists, the "**Radiation Area**" signs and barrier ropes shall be removed.

All state and/or federal laws governing the use, storage, or handling of radiation producing equipment shall be complied with.

Any tampering or non-compliance with radiation producing equipment, or radiation barriers or signs, shall result in the contractor and/or its employee(s) being promptly removed from the company property.

XXV. Vehicles and Traffic

Safe Vehicle Operation

To drive a vehicle, you are required to maintain in your possession a valid driver's license and a commercial driver's license, if required.

All vehicles must be inspected before use and be in safe mechanical working condition, complying with federal and state requirements for brakes, lights, signals, horns, mufflers, etc.

Motor vehicle operators must obey posted speed limits, signs, and comply with all safety rules and regulations.

Consider traffic, road and weather conditions to determine the safe speed to operate your vehicle.

Vehicle traffic must be confined to established drives and parking areas unless otherwise directed.

Clearances must be checked before moving a high load or equipment. Beware of overhead obstructions.

Know the **CLEARANCE** around your vehicle, including the **HIGHEST POINT**, before moving a high load or equipment. **LOOK OUT** for overhead lines and building overhangs.

If necessary, get a flagger before proceeding!

Vehicle engines should be shut off and brakes must be set whenever the operator exits a vehicle.

Riding on a vehicle must be limited to seats in the cab. While in motion, personnel in the vehicle must not extend any part of their bodies beyond the lines of the vehicle bed, as defined by its gates, barriers, and/or seat arrangement.

When mounting or dismounting vehicles, equipment and trailers, use hand-grab rails, if provided.

Material being transported that extends beyond the sides or end of a vehicle must be properly secured and must be marked at the farthest extension with a red flag.

All trucks transporting waste and/or demolition material must be loaded to prevent any material from dropping off the truck.

When work being performed interferes with the safe flow of traffic, traffic control devices (*such as orange cones, barriers or flashers*) must be placed appropriately, and the work crew must provide a flagger to control traffic around an obstructed lane or lanes.

Motor vehicles with an obstructed view to the rear must be guided when backing. The driver must arrange for a safety/guide person whenever such a vehicle is driven backwards.

Within switchyards, a safety person shall **ALWAYS** be used to assist the driver when moving large vehicles such as boom trucks, etc.

At a minimum, employees must wear seat belts when operating or riding in any motorized vehicle so equipped, on or off the road, while on the owner's property.

Safe Forklift Operation

It is mandatory that personnel who operate forklifts receive training and have current certification in the operation of forklifts. Do not operate forklifts if certification has expired.

When parked, keep the forks or platform in the lowered position.

When traveling, forks or platforms must be in a lowered position.

Never allow anyone to stand on or pass under elevated forks.

Wear the seat belt provided.

Safe Mobile Crane Operation

It is mandatory that personnel who operate mobile cranes be trained on the crane to be operated.

XXVI. Maritime Safety and Transportation Act

The Maritime Safety and Transportation Act (*MTSA2002*) was established in 2002 by the Department of Homeland Security to require security assessments, plans, measures and procedures to protect America's ports and waterways from terrorist attack. The MTSA2002 standardizes the security measures of our domestic port security. Details of MTSA2002 are available to all DTE Energy suppliers at the following Power Plants: St. Clair, Trenton Channel and Monroe. All contractor personnel working at these locations are expected to follow the provisions of the act.

XXVII. Definitions

Contractors performing work at a company facility shall be familiar with the following terminology:

ACM – Asbestos Containing Material.

COMPETENT PERSON – A person who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience,

has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

CONTRACT ADMINISTRATOR – A representative of the company who will provide the scope of work, administer the contract, and monitor contractor performance.

CONTRACTOR – A company or individual contracted to perform work and/or provide services.

EMERGENCY EVACUATION PLAN – Designates actions in writing that must be taken in the event of a fire and other emergency.

FLAMMABLE LIQUID – Any liquid having a flashpoint below 100^o F (37.8^o C), except any mixture having components with flashpoints of 100^o F (37.8^o C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

HAZARD COMMUNICATION – A means for communicating hazards of chemicals through container labeling, material safety data sheets and employee training.

MATERIAL SAFETY DATA SHEET (MSDS) – Written or printed material concerning a hazardous chemical which is prepared by the manufacturer.

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT (MIOSHA) – A state agency responsible for prescribing and enforcing minimum workplace safety and health standards in the state of Michigan.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) – Has developed safety codes and standards that influence every building, process, service, design, and installation in the United States.

PROTECTION LEADER – The employee who is qualified to receive protection on equipment or systems.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) – A federal agency responsible for prescribing and enforcing minimum safety and health standards.

SAFE2WORK – An online safety training and tracking system developed for the building trades to provide a uniform and consistent format for safety training and substance abuse testing. The safety courses that are available are: asbestos awareness, cadmium safety, confined space entry, electrical safety, fall protection, fire safety, hazcom: identifying the dangers; ladder safety, lead safety, lockout / tagout, personal protective equipment, scaffold safety, trenching and shoring, and silica safety.

In the absence of regulatory standards, the Safe2Work Drug and Alcohol test, or MUST, MOST, or DOT drug and alcohol test or their equal are mandatory for all building and construction related trades on all DTE Energy projects at all times.

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