

OSHA ET&D Partnership



Data Task Team Report to
Steering Committee

OSHA 300 Log
Analysis for
Calendar Year 2024

October 2025

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Data Task Team



Executive Summary

The Data Task Team presents the analysis report for 2024 of the Partner OSHA data. The mission of the Data Task Team has remained the same, data collection and analysis as a means to establish causes of serious injuries and fatalities for electrical work in the industry. In 2018 the Data Task Team was charged with analyzing the SIFs reported by the Partner companies. Identifying commonalities and trends in substance and operations that result in Serious Injuries and/or Fatalities (SIF) will greatly increase the ability of the Partners to achieve /exceed the established goals. Detailed descriptions of fatality and other SIF incidents are key in the Team's ability to perform accurate analysis and to make recommendations that will contribute to the continual reduction in these events.

Since 2011, all the Partner companies have submitted their OSHA 300 data to the Data Task Team for analysis. The data is submitted, redacted, and compiled. That data is then evaluated and analyzed to determine the most prevalent types of injuries and associated information (e.g., nature of injury, location, type of work being performed, cause, etc.). Additionally, incident-related data from OSHA's Information System (OIS) was used in analysis.

Beginning with CY2023 report, submission of Partner 300 log data for analysis and the data from OIS was discontinued, and as stated above, focuses on Partner SIF data.

Take Aways and Opportunities:

- Supervision Job Title SIF events increased from 2 to 9 (+350%).
- The Data Task Team has added a SIF rate. See Baseline Data graphs in [Appendix C – Baseline Data Graph TCIR, LTIR, DART, Fatalities](#).
- Of the 52 total SIF events, 14 were identified as having an applicable Partnership Best Practice. There may be opportunities for the Partners to review Best Practice communications to existing and new employees, whether through continued training or new hire orientation.
- The Job Briefing Best Practice could be enhanced, based on new and upcoming techniques to classify incidents using the SCL Model/High Energy Wheel.
- SIF events related to Pole Handling represented 23% of all events. Pole Handling is suggested as a topic for an upcoming quarterly refresher training.

Serious Injury and Fatality (SIF)

The fundamental goal of this Partnership is to reduce the number of serious injuries and fatalities (SIF) in the industry. SIF events are a critical subset of an employer's OSHA recordable events. The information gained through analysis of SIF events will further aid in the identification of causal factors that result in serious injury or fatality.

When charged with focusing on the SIF events, the Data Task Team agreed to use the EEI's latest SIF Criteria. [Appendix A – EEI SIF Criteria](#)

Overview

1. Fatalities: 4 events – 2 Electrical Contact and 2 Caught Between Injury Classifications Table 3 – Fatality Yearly Comparison
2. Applicable Best Practices: 14 events Table 6 – Best Practice
3. Bone Fractures: 30 events – highest SIF Event Classification of all events [Table 4 – 2020 to 2024 SIF Fractures General Activity](#) | [Table 5 – SIF Fractures by Injury Classification](#)
4. Burns 2nd or 3rd: 7 events – second highest SIF Event Classification of all events. [Electrical Events](#)
5. Fall From Elevation Injury Classification: 13 events [Fall From Elevation Events](#)
6. Material Handling Manual and Mechanical Injury Classifications: 8 events - [Material Handling Events](#)
7. Job Title Analysis - [Job Title Analysis](#)

Partners have reported 52 SIF events for 2024. Four of the 52 events resulted in employee fatalities. Two fatal events were attributed to a Partnership Best Practice: Lock-to-Lock Use of Insulating Rubber Gloves and Sleeves, and Job Briefings, respectively. While reviewing all SIF events, the Partners identified 14 cases with an applicable Best Practice. [Appendix B – Partnership Best Practices](#)

Fractured bones that required surgery to repair represented the highest number of SIF events at 30 (58%). Most of the fractures occurred to employees on the ground being struck by objects.

Electrical Contacts and Arc Flashes were reported in 11 events. Two of these events resulted in Fatalities. [Table 2 – Electrical Contacts and Arc Flashes Best Practice](#)

Fatalities

A primary Partnership goal is the reduction of fatalities. The Partners' data indicated that there were four fatal incidents in 2024. The 2024 fatalities descriptions are listed below.

- **Electrical Contact:** A four-man sub-group of a nine-man transmission crew was removing a 65-foot concrete pole from a de-energized 115kV line when the boom unexpectedly rotated, bringing the pole closer to an energized 46kV line. The pole top

contacted the energized line, causing a fatal electrical injury to the Critical Task Observer who may have attempted to control the pole.

- Electrical Contact: While pulling new underground primary cable, the crew leader believed the high voltage switch gear was de-energized and entered a bay to diagnose a bypass issue. Unfortunately, the switch gear was still energized, and the crew leader made contact with the upper buss work.
- Crushing: Employee was inspecting the control unit that was moved by customer, while inspecting the control unit when it fell onto the employee.
- Crushing: Fatal Crushing

Of the four fatal events in 2024, two were connected to an applicable Best Practice for Job Briefings. The crushing events did not have an applicable Best Practice.

The average number of Fatal events (2016-2024) is 4.1, annually. Within the last three years (2022- 2024), the Partners had four Fatal events for Electrical Contacts, which account for 50% of the total fatal events. The Partners reported two fatalities due to Electrical Contacts in 2024.

[Table 3 – Fatality Yearly Comparison](#)

SIF Analysis

The Partners agreed to utilize the updated EEI SIF Criteria for the 2024 data classification. The Partners identified 52 SIF events. Four events were fatalities, discussed above. Analysis of SIF events shows that most injuries belong to the Fractured Bones with Surgery and Burns 2nd & 3rd SIF Classification. These two SIF Classifications account for 58% of the SIF events. [Table 3 – Fatality Yearly Comparison](#)

The Data Task Team identified applicable Best Practices for 14 SIF events. The data collected currently does not provide enough information for complete analysis of the use of the current Best Practices. It is **recommended** that the Partners continue to report applicable Best Practices for all SIF events. [Appendix B – Partnership Best Practices](#)

Applicable Partnership Best Practices

Of the 52 SIF events, 14 were identified with an applicable Best Practice. Of these 14, five were attributed to the Job Briefing Best Practice (36%) and 3 were attributed to the Cradle-To-Cradle Use Of Insulating Rubber Gloves And Sleeves (21%). [Table 6 – Best Practice](#)

Of the 38 SIF events without an applicable Best Practice, the top three Injury Classifications were:

- 10 Struck By
- 10 Caught Between
- 10 Fall From Elevation

SIF Event Top Injury Classification, General Activity, and Job Title Categories Reviews

Fractured Bone with Surgery Events

The Partners reported 30 events (58%) which resulted in fractured bones that required surgery. This represents a 67% increase from 2023 (18). Of these 30 SIF events, 11 were identified as having an Injury Classification of Struck By and 10 were Fall From Elevation. [Table 4 – 2020 to 2024 SIF Fractures General Activity](#) | [Table 5 – SIF Fractures by Injury Classification](#)

Top Injury Classifications for Bone Fractures

- Struck By – 11
 - Pole – 3
 - Equipment In Use – 3
 - Material – 5
- Fall From Elevation – 10
 - Bucket Truck – 4
 - Pole – 2
 - Digger Derrick – 1
 - Unidentified Fall - 3

Electrical Events

Eleven events were identified with Injury Classifications of Arc Flashes (4) or Electrical Contacts (7), collectively representing 27% of all SIF events. Two of these events resulted in employee fatalities.

- SIF Classification
 - 7 Burns
 - 2 Fatalities
 - 2 Electrical Contacts
- Worker Location
 - 5 Ground level
 - 3 Aloft in Aerial Lift
 - 2 Padmount Equipment
 - 1 Equipment

Fall From Elevation Events

The Partners reported 13 Fall From Elevation Injury Classification events, representing 25% of all SIF events.

- 5 Equipment
 - 3 Bucket Truck Access/Egress
- 3 Poles
- 2 Aloft in an Aerial Lift
 - These falls involved a crane tip over with the employees in the basket from a single SIF Event.

Material Handling Events

The Partners reported 8 SIF events related to the Materials Handling General Activities related, representing 15% of all events.

- 3 Moving Poles
- 2 Moving Wire Reels
- 3 Not Identified

Job Title Analysis

The Data Task Team reviewed the job titles of the reported 52 SIF events. The data showed a remarkable decrease in injuries to Apprentices by 83%. Supervision injuries also increased 350%.

- Apprentice – 12 events in 2023 vs. 2 in 2024
 - Fall From Elevation (2)
 - Crane Tip Over 1
 - From Bucket Truck 1

- Lineman – 17 events in 2023 vs. 33 in 2024
 - Fall From Elevation – 10
 - Electric Contact – 6
 - Struck By - 6
 - Caught Between - 5
 - Arc Flash – 2
 - Motor Vehicle – 2
 - Slip/Trip – 2

- Supervision – 2 in 2023 events vs. 9 in 2024
 - 17% of SIF events
 - Struck by – 3
 - Arc Flash – 2
 - Caught Between 2
 - Electric Contract – 1
 - Fall From Elevation – 1

[Table 9 – SIF Events Job Title Analysis](#)

Appendix A – EEI SIF Criteria

APPENDIX 1 – EEI SERIOUS INJURY AND FATALITY (SIF) CRITERIA

Effective Date: January 1, 2025

What is a SIF?

SIF was developed to be a metric that better defines serious injuries and fatalities. It includes work-related fatalities, life-threatening injuries, life-altering injuries, or the SIF criteria described below.

DEFINITIONS

Work-Related: If the injury is OSHA recordable, it should be considered work-related.

Life-Threatening: A physical injury that if not immediately addressed is likely to lead to the death of the affected individual and will usually require the intervention of life sustaining support by external emergency response personnel or colleagues.

Life-Altering: A physical injury that results in permanent loss of use of an internal organ, body function, or body part.

Serious Injury Incidence Rate (SIIR): The SIIR is calculated using the formula (# cases x 200,000/hours worked). The calculation of the SIIR uses the same hours worked number as the calculation of the Recordable Incidence Rate.

Identifying and Classifying Serious Injuries

When the work-related requirement has been met, compare the employee injury to the Serious Injury Criteria listed below to determine if the injury is deemed "Serious." (Each case should be counted only once. In cases with multiple injuries, assign the case to the category representing the most severe injury.)

SIF CRITERIA

1. Fatalities

2. Amputations (involving bone) excludes distal phalanx.

Excludes distal phalanx unless thumb, index or great toe.

Frequently Asked Questions

Q. *If the amputation of a distal phalanx includes more than one finger that is not a thumb or index finger, would this be considered a SIF?*

A. No, the multiple amputation of distal phalanges would not count as a SIF unless it included the thumb or index finger. On the foot, it would not count unless it included the great toe.

3. Head trauma that results in a traumatic brain injury (TBI), intracranial bleeding or loss of consciousness for greater than 30 minutes.

Intracranial can include any bleeding within the confines of the skull and things that are outside of the brain tissue like an epidural bleed.

4. Injury or trauma to vital organs to include brain, spinal cord, heart, lungs, kidneys, liver, spleen, large and small intestine, and stomach.

Frequently Asked Questions

1. *When should a case of organ damage be classified as serious?*
- A. Injuries and occupational illnesses resulting from acute exposures should be classified as serious if objective medical evidence indicates significant or sustained (beyond initial event, acute treatment and testing) organ damage, or progressive changes in organ function or anatomy. This criterion does not include injury from long term or repetitive exposures.

Only cases that involve relatively short-term events should be included in the serious metric, even if the result is an illness. Illnesses that develop from exposure over long periods of time (years) are not to be captured in this metric (example, fibrosis of the lung from asbestos exposure).

- Q. *Is a hernia considered a serious case?*

- A. A hernia by itself would not be classified as a severe case. However, if the hernia causes damage to an internal organ such as a strangulated colon, it would be classified as a severe case.

5. Bone fractures requiring surgery for repair (pins, rods, screw, plates, wires, etc.) Excludes fingers and toes.

Bone fracture that requires open reduction and internal fixation (ORIF) or other immediate surgical intervention.

Bone fracture of the fingers and toes that require ORIF is excluded.

Any injury to the spine that results in permanent neurological impairment and/or a sensory or motor deficit that does not resolve within the expected/normal recovery time.

Frequently Asked Questions

- Q. *Are all fractures of the fingers and toes that result in a permanent loss of mobility excluded?*

- A. All fractures of the fingers and toes are excluded.

6. Acute traumatic herniated disc with neurologic deficit – sensory or motor

7. 2nd degree burn (10% body surface); 3rd degree burn (5% of body surface) or 3rd degree burn requiring skin graft.

Burns resulting from **electrical contact** or **chemical exposure** should be classified respectively under criterion #12 or #14.

8. Eye injuries resulting in permanent vision loss or change in vision.

Frequently Asked Questions

Q. Does a corneal abrasion constitute eye damage injury?

A. No. Corneal abrasions and/or scratches due to foreign bodies are considered minor and usually heal quickly.

9. High pressure injection injuries requiring surgical debridement and irrigation.

This could include injuries resulting from injection of hazardous materials such as hydraulic fluid or hydrogen fluoride.

10. Heat Stroke

Must meet medical diagnosis of heat stroke.

11. Dislocation of the hip, elbow or knee.

Does not include dislocation of the patella (kneecap).

Count only cases that required the manipulation or repositioning of the joint back into place under the direction of a treating doctor.

12. Electrical contact injuries.

Injuries resulting in or requiring one of the following procedures:

- Surgical repair, skin grafting or amputation
- Permanent contracture of a joint or loss of function
- Cardiac Dysrhythmia

If there is a burn resulting from an electrical contact, please classify here using the burn criterion (#7) in addition to this criterion.

13. Vascular trauma requiring surgery

14. Acute chemical or radiological exposure resulting in injury to vital organs to include brain, spinal cord, heart, lungs, kidneys, liver, spleen, large and small intestine, and stomach.

If there is a burn resulting from a chemical or radiological exposure, please classify here using the burn criterion (#7) in addition to this criterion.

15. Other injuries

The "Other injuries" category should only be selected to report injuries not identified in the existing categories. The injury must meet the life-threatening or life-altering definition.

Injuries listed in this document are intended to capture life-threatening and life-altering injuries. We recognize that there is variability in recovery from injury by individuals. Injuries that do not generally result in life-altering outcomes have been omitted.

When applying this classification to life-altering injuries not listed, please select only if an employee is unable to engage in prior level of work functional ability. A description box is provided to briefly describe the nature of the injury.

Key Changes

- Addition of definitions of life-threatening and life-altering.
- *Amputations involving bone*: The exclusion of the distal phalanx unless thumb, index, or great toe.
- *Concussions*: Changed to head trauma resulting in traumatic brain injury (TBI), intracranial bleeding, or loss of consciousness for greater than 30 minutes.
- *Trauma to internal organs*: Changed to vital organs to include: brain, spinal cord, heart, lungs, kidneys, liver, spleen, large and small intestine, and stomach.
- *Bone fractures*: Changed to only those fractures requiring surgery for repair (pins, rods, screw, plates, wires, etc.). Excludes fingers and toes.
- *Complete tendon, ligament, and cartilage tears*: Removed from criteria.
- *Herniated disc*: Changed to acute traumatic herniated disc with neurologic deficit—sensory or motor.
- *Lacerations resulting in severed tendons or deep wound requiring internal stitches*: Removed from criteria.
- *2nd (10% body surface) or 3rd degree burns*: Changed to 2nd degree burn (10% body surface); 3rd degree burn (5% of body surface) or 3rd degree burn requiring skin graft.
- *Eye injuries resulting in eye damage or loss of vision*: Changed to eye injuries resulting in permanent vision loss or change in vision.
- *Injections of foreign materials*: Changed to high pressure injection injuries requiring surgical debridement and irrigation.
- *Severe heat exhaustion and all heat stroke cases*: Changed to include only medically diagnosed heat stroke.
- *Dislocation of a major joint*: Now limited to the hip, elbow or knee. The shoulder, wrist or ankle should not be included.
- *Electrical contact injuries*: This is a new category added to capture the unique injuries caused by electrical contacts. Specifically, injuries resulting in or requiring one of the following procedures:
 - Surgical repair, skin grafting or amputation
 - Permanent contracture of a joint or loss of function
 - Cardiac Dysrhythmia

Qualifying burns resulting from electrical contact should be classified using this category rather than the burns category.

- *Vascular trauma requiring surgery*: This is a new category to capture severe injuries.
- *Acute chemical or radiological exposure resulting in injury to vital organs*: This is a new category. As with electrical contact injuries, this category was designed to capture and classify injuries caused by these specific hazards. Burns resulting from these hazards should be classified here.
- *Other injuries*: Instructions for this section are included to clarify that injuries classified as 'other' must meet the life-threatening or life-altering definition.

Appendix B – Partnership Best Practices

#1 ADMINISTRATIVE CONTROLS & INFORMATION TRANSFER

PRACTICE STATEMENT: To eliminate injuries to personnel from improper job planning and risk assessment.

PRACTICE DESCRIPTION: Identify protection methods and risk mitigation techniques based on information obtained through information transfer and jobsite analysis. The information obtained through this process shall be provided to the employee in charge to supplement the field crew's job briefing.

- A. Pre-planning to begin at the pre-bid meeting.
- B. Preliminary job site analysis.
- C. The Contractor shall request information from the Host Employer so that the Contractor may be able to conduct adequate risk assessments prior to beginning and during operations. As a minimum this information shall include:
 - Nominal voltage of lines & equipment
 - Maximum switching transient voltage (TOV)
 - Presence of induced voltage
 - Presence of protective grounds and grounding conductors
 - Location of circuits and equipment, including electric supply lines, communication lines, and fire protective signaling circuits
 - The condition of protective grounds and equipment grounding conductors
 - The condition of structures, poles, and/or other facilities.
 - Environmental conditions related to safety.
 - Other known system information related to safety, requested by the contractor such as incident energy, MAD distance, AR clothing.
- D. Knowledge of any change in the original work task and any other conditions or characteristics that may affect the safety of the workers.
- E. Line work on conductors or equipment shall be performed when they are de-energized, or a portion is de-energized and grounded when possible.
- F. Information that is required of the contractor to be communicated to the host:
 - The contract employer shall advise the host employer of any unique hazardous conditions presented by the contract employer's work.
 - The contract employer shall advise the host employer of any unanticipated hazardous conditions found during the contract employer's work that the host employer did not provide.
- G. Examples of Host Employer Communication may include work orders, job prints, bid documents, and/or one-line diagrams. The contractor shall

document communication (as stated in item “C” above) from the host employer.

BENEFITS:

- Eliminate injuries resulting from improper planning by ensuring key job hazards are identified and controlled.

REFERENCES:

National Electric Safety Code (NESC, ANSI C2 – Part 4)

OSHA 29 CFR §1926.950 (c)

OSHA 29 CFR 1910.269 (a)(3)

#2 JOB BRIEFINGS

PRACTICE STATEMENT: To provide a uniform method to conduct and document a task-oriented job briefing and the review of critical mitigation information.

PRACTICE DESCRIPTION: The employee in charge shall discuss the tasks to be performed. The briefing shall be documented and include an explanation of how the tasks shall be achieved, hazards expected to be encountered, and steps to be taken to eliminate or control the hazards.

The documented Job Briefing shall identify each of the following:

- A. Tasks to be performed.
- B. Any Critical Steps for the task
- C. How the crew shall complete the tasks with “Positive Control”: the key steps that must be done correctly to ensure the planned outcome of the task
- D. Existing worksite conditions or characteristics, including any information provided by the host employer.
- E. Specific roles and responsibilities for each employee for completing the tasks.
- F. Existing and predictable hazards
- G. Which situations require heightened awareness, e.g., Qualified Observer, Spotter, Confined Space Attendant, etc.
- H. Hazard/Risk mitigation
- I. The required protective methods (where applicable) to be used, which include but are not limited to the following:
 - Insulation
 - Isolation
 - Grounding
 - Equal Potential Zone
- J. Personal Protective Equipment (PPE) required.
- K. Emergency response information

Task specific job briefings shall be held:

- at the start of the work shift,
- at the location of the tasks,
- whenever tasks, key steps, or scope of work changes,
- hazards differ from the original briefing,
- as additional personnel arrive at the job site, and
- after extended work pauses (work breaks, weather delay, etc.).

The briefing form shall have a provision for each employee to sign to verify they have participated in the briefing. Each ET&D Partnership company’s management shall establish a review process to ensure that the documented task briefing process is effective.

Debrief

At the end of the workday or prior to work beginning the following day, employees shall convene to debrief. Debriefing discussions may include successful or unsuccessful work methods, special site conditions to be considered, accomplishments and/or accolades, or goals moving forward. All debriefing discussions shall be noted on the task briefing form and lessons learned considered for all future work.

BENEFITS:

- Provides essential job safety planning guidelines and lists key elements.
- Incorporates use of a specific hazard identification process in the job planning process that will provide for enhanced controls for risks.
- The process and required documentation encourage inclusion and participation of job team members in the specific task hazard identification and mitigation associated with the overall job.
- Provides a process (Debrief) to review lessons learned from each work shift.

DEFINITIONS:

Positive Control is the idea that one is aware of and in control of actions/steps and the outcomes of the actions/steps. A person/work crew maintains positive control when the outcome of all action/steps is intended and expected.

Critical Step is any action that will trigger immediate irreversible harm if that step or preceding actions are performed improperly or omitted.

Task for the purposes of this Best Practice is the sub-elements of a job. The processes necessary to complete the job.

Step for the purposes of this Best Practice is the sub-element of a task. The detailed processes necessary to complete a task.

#3 PRE-USE INSPECTION OF INSULATING PROTECTIVE EQUIPMENT AND INSULATING PERSONAL PROTECTIVE EQUIPMENT

PRACTICE STATEMENT: Protocols related to the effective inspection of insulating protective equipment (IPE) and insulating personal protective equipment (IPPE).

PRACTICE DESCRIPTION: All IPE (rubber/plastic) and IPPE shall be inspected by a qualified employee prior to each use and immediately following any incident that can reasonably be suspected of causing damage.

Pre-use inspection must, at minimum, cover the following:

- All IPE/IPPE shall be inspected for any damage, wear or contamination that would compromise its ability to insulate the linemen from different potentials. If upon inspection, IPE/IPPE is found to be defective, the equipment shall be identified and removed from service.
- Applicable service dates and voltage rating shall be observed.
- Insulating rubber gloves shall be given an air test along with an inspection completed by the qualified user.
- Insulating rubber sleeves shall be inspected by the qualified user.

BENEFITS:

- Ensures insulating protective equipment can be used to protect at the rated voltage.
- Provides uniform inspection guidelines for in-service inspection of insulating protective equipment.

DEFINITIONS:

- Insulating Personal Protective Equipment (IPPE): Insulating rubber Gloves and Sleeves.
- Insulating Protective Equipment (IPE): Insulating rubber blankets, rubber line hose, rubber hoods, plastic covers, etc.

REFERENCES:

ASTM F478 Standard Specification for In-Service Care of Insulating Line Hose and Covers

ASTM F479 Standard Specification for In-Service Care of Insulating Blankets

ASTM F496 Standard Specification for In-Service Care of Insulating Gloves and Sleeves

ASTM F1236 Standard Guide for Visual Inspection of Electrical Protective Rubber

Products

OSHA 29 CFR 1910.137

OSHA 29 CFR 1926.97

National Electric Safety Code (NESC, ANSI C2 – Part 4)

#4 QUALIFIED OBSERVER

PRACTICE STATEMENT: A Qualified Observer shall be designated to provide timely warning while working on or within the minimum approach, including extended reach, of energized conductors or equipment (systems at and above 600V).

PRACTICE DESCRIPTION: A member of the crew shall be identified to act as a Qualified Observer to ensure clearances are maintained, PPE, and effective cover-up is installed.

- A. A Qualified Observer shall be designated to provide timely warning while working:
 - On or within the minimum approach including extended reach, of energized conductors or equipment (systems at and above 600V).
 - When using mechanical mobile equipment near energized conductors.
 - When moving energized conductors.

- B. A Qualified Observer is defined as an electrically qualified worker that can identify all hazards present to the crew working energized conductors. The Qualified Observer shall be capable of:
 - a. Distinguishing exposed live parts.
 - b. Identify nominal voltages.
 - c. Determine minimum approach distances.
 - d. Knowing safe work practices for working on, or near, energized lines and equipment.
 - e. Recognize electrical hazards to which workers will be exposed and skills and techniques to control those hazards.
 - f. Rendering immediate assistance in case of an accident,

- C. The Qualified Observer shall not perform other duties and all work shall stop if the Qualified Observer can no longer perform observer duties.

DEFINITIONS

The term “effective cover up” is used to describe the installation of phase-to- phase rated insulating protective cover on energized conductors and/or equipment of different potentials when the lineman is within reaching distance or in areas extended by handling conductive objects.

The term “extended reach” is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

BENEFITS:

- Eliminate unintentional contact with energized components while working on, or near lines and equipment.
- Eliminate injuries from unrecognized hazards or changes in conditions.
- Clarify duties and provide guidance as to when observers are necessary.
- Provides guidance on observer qualifications.

#5 I&I TECHNIQUES FOR THE RUBBER GLOVE METHOD

PRACTICE STATEMENT: The effective use of Isolate and Insulate equipment and procedures to provide the necessary level of safety when qualified line workers are working on energized lines & equipment.

The employer must ensure that any employee who performs energized line work is qualified through training and experience to perform the work assigned.

PRACTICE DESCRIPTION: Properly performed Insulate and Isolate (I&I) techniques used in conjunction with the necessary Insulating Personal Protective Equipment (IPPE) allows a qualified line worker to safely work on and around energized equipment and conductors.

1. Only qualified line workers shall be permitted to encroach M.A.D. using this Best Practice.
2. When working from an aerial lift the ‘Cradle to Cradle’ Best Practice shall be observed.
3. Before getting into a position where the qualified line worker can reach into, extend any conductive object into, or extend any other part of the body into the M.A.D., properly rated IPE/IPPE shall be used to insulate/isolate energized conductors and/or other conductive parts at a different potential.
4. For URD equipment the criteria for the ‘Lock to Lock’ Best Practice shall be observed.
5. Properly rated IPE shall be installed in the order of ‘nearest first’ and removed in the reverse order.
 - Energized or de-energized part(s) may have to be temporarily covered in order to install IPE on all parts necessary to insulate/isolate the part that is to be worked on.
 - The part to be worked shall only be uncovered after all IPE has been installed in the work zone that will allow no contact with conductors or equipment at a different potential.
 - IPE shall be installed/removed in such a manner so that the worker is not exposed to contact from energized conductors or second points of contact.
 - The line worker shall **NEVER** turn their back on exposed energized conductors or second points of contact within M.A.D.

BENEFITS:

- Eliminate contact injuries.
- Eliminate electric arc flash injuries.
- Safely working on energized circuits and maintaining the reliability of the electrical system.

Definitions:

Effective cover-up is used to describe the installation of phase-to-phase rated insulating protective cover on energized conductors and/or equipment of different potentials when the lineman is within reaching distance or in areas extended by

handling conductive objects.

Extended reach is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

Insulated: (1) The use of IPE to protect the line worker while gloving energized lines/equipment.

Insulating Personal Protective Equipment (IPPE): Rubber Gloves and Sleeves.

Insulating Protective Equipment (IPE): rubber blankets, rubber line hose, rubber hoods, plastic covers, etc.

Isolate: (A) Physically separated, electrically and mechanically, from all sources of electrical energy. Such separation may not eliminate the effects of induction. (B) Not readily accessible to persons unless special means of access are used.

Minimum Approach Distance (M.A.D.): The distances set forth in 29 CFR 1910.269. This distance is measured from the end of the line worker's reach or from the end of any conductive object being handled by the line worker.

Second points of contact: Accidental/inadvertent contact made with any conductive object within your extended reach that could have a difference of potential and would allow current to pass through the body.

REFERENCES:

- **NJATC** – Effective Cover Up; interactive training.
- **NECA** – Safety Risk Management for the Electrical T&D Line Construction
- **IBEW** – Ten States Safety Manual
- **OSHA** – 1910.269, 1926.950; subpart V
- **ASTM** – F 968-93
- **ET&D Partnership** – Existing Best Practices
- **WISHA-296-45** – Electrical Workers
- **IEEE 100** – The Authoritative Dictionary of IEEE Standards Terms (seventh edition)

#6 CRADLE-TO-CRADLE USE OF INSULATING RUBBER GLOVES AND SLEEVES

PRACTICE STATEMENT: Protocols related to effective use of insulating rubber gloves and sleeves.

PRACTICE DESCRIPTION:

- A. When employees are working on energized circuits or equipment using the rubber glove method, insulating rubber gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn cradle-to-cradle when working from an aerial platform.
 - Exception-Insulating rubber sleeves are not required when employees are working circuits with a potential of 600 volts or less if there is no upper arm exposure and the worker will not encroach the 5-foot primary zone.
- B. Electrical class rating of the insulating rubber sleeves shall meet or exceed the electrical class rating of the insulating rubber gloves when working on primary conductors.
- C. Company policies shall apply when the above conditions cannot be met. Alternative work methods ensuring worker safety shall be identified, communicated to all affected workers, implemented, and documented as part of the Job Briefing process.

BENEFITS:

- Provides specific use requirements that are proven methods for reducing electrical contact injuries and fatalities.
- Provides uniform use guidelines that can be applied industry wide.

DEFINITIONS

Effective Cover Up is used to describe the installation of phase-to- phase rated insulating protective cover on energized conductors and/or equipment of different potentials when the lineman is within reaching distance or in areas extended by handling conductive objects.

Extended Reach is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

#7 LOCK-TO-LOCK USE OF INSULATING RUBBER GLOVES AND SLEEVES

PRACTICE STATEMENT: Protocols related to effective use of insulating rubber gloves and sleeves.

PRACTICE DESCRIPTION:

- When employees are working on energized circuits or equipment, rubber protective-insulating gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn “lock to lock” when employees are working on underground electrical equipment. This includes when the employee manipulates the enclosure’s door.
- A complete, thorough inspection and hazard assessment must be conducted prior to any action involving manipulation of the locking mechanism being performed. This hazard assessment could include the following based on geographical location: Visible damage, hinge condition, foundation (stability and general condition), rust, site conditions (landscaping), noise in the enclosure, oil present in and around enclosure, wildlife concerns (bees, snakes, etc.)
 - If no physical, sensory, or environmental condition is present during the hazard assessment that would necessitate the use of gloves and sleeves to unlock the lock, gloves and sleeves may be omitted for unlocking. Gloves and sleeves are required for lock removal without exception.
- Rubber gloves and sleeves shall be worn when working on or within the extended reach of the conductor or piece of equipment.
- The electrical class rating of the insulating rubber sleeves shall meet or exceed the electrical class rating of the insulating rubber gloves.

BENEFITS:

- Provides specific use requirements that are proven methods for reducing electrical contact injuries and fatalities.
- Provides uniform use guidelines that can be applied industry wide.

DEFINITIONS

Lock-to-Lock is used to describe the utilization of rubber gloves and sleeves, when required, prior to the time the pad mounted equipment is unlocked until work is complete, and the pad mounted equipment is relocked.

Extended Reach is used to describe being within five feet of energized conductors and/or equipment or having a conductive object within five feet of energized conductors and/or equipment.

#8 I&I TECHNIQUES FOR THE LIVE LINE TOOL METHOD ON DISTRIBUTION

PRACTICE STATEMENT: The effective use of Isolate and Insulate equipment and procedures to provide the necessary level of safety when performing Live Line Tool work on energized lines & equipment.

The employer must ensure that any employee who performs energized line work is qualified (See 29 CFR 1910.269 and 29 CFR 1926.950) through training and experience to perform the work assigned.

PRACTICE DESCRIPTION: Properly performed Insulate and Isolate (I&I) techniques used in conjunction with the necessary insulating live line tools allows qualified personnel to safely work on and around energized equipment and conductors.

I&I Definitions:

1. **Insulated:** (1) The use of Insulated Protective Equipment (IPE) to protect the line worker while working on or within 5 feet (including extended reach) of energized lines/equipment.
2. **Insulating Personal Protective Equipment (IPPE):** Rubber Gloves and Sleeves.
3. **Insulating Protective Equipment (IPE):** rubber blankets, rubber line hose, rubber hoods, plastic covers, etc.
4. **Isolate:** (A) Physically separated, electrically and mechanically, from all sources of electrical energy. Such separation may not eliminate the effects of induction. (B) Not readily accessible to persons unless special means of access are used.
5. **Minimum Approach Distance (M.A.D.):** The distances set forth in 29 CFR 1910.269. This distance is measured from the end of the line worker's reach or from the end of any conductive object being handled by the line worker.
6. **Second points of contact:** Accidental/inadvertent contact made with any conductive object within your extended reach that could have a difference of potential and would allow current to pass through the body.

I&I Best Practice: Energized Primary Live Line Tool Method

1. Only workers who are qualified shall be permitted to work within M.A.D. using this Best Practice.

2. When working from an aerial lift/structure the 'IPPE for the Live Line Tool Method on Distribution Lines' Best Practice shall be observed. Any time an employee's unprotected hands and/or arms are positioned within the MAD of exposed energized lines or equipment, appropriately rated rubber gloves and sleeves shall be worn, or effective cover shall be applied.
3. Before getting into a position where the qualified line worker can reach into, extend any conductive object into, or extend any other part of the body into the M.A.D., approved and tested IPE/IPPE for the voltage to be worked shall be used to insulate/isolate energized conductors and/or other conductive parts at a different potential.
4. For URD equipment the criteria for the 'Lock to Lock' Best Practice shall be observed.
5. Approved IPE shall be installed in the order of 'nearest first' and removed in the reverse order.
 - a. Energized or de-energized part(s) may have to be temporarily covered in order to install IPE on all parts necessary to insulate/isolate the part that is to be worked on.
 - b. The part to be worked shall only be uncovered after all IPE has been installed in the work zone that will allow no contact with conductors or equipment at a different potential.
 - c. IPE shall be installed/removed in such a manner so that the worker is not exposed to contact from energized conductors or second points of contact.
 - d. The line worker shall **NEVER** turn their back on exposed energized conductors or second points of contact within M.A.D.

BENEFITS:

- Eliminate contact injuries.
- Eliminate electric arc flash injuries.
- Safely working on energized circuits and maintaining the reliability of the electrical system.

REFERENCES:

- **NJATC** – Effective Cover Up; interactive training.
- **NECA** – Safety Risk Management for the Electrical T&D Line Construction
- **IBEW** – Ten States Safety Manual
- **OSHA** – 1910.269, 1926.950; subpart V
- **ASTM** – F 968-93
- **ET&D Partnership** – Existing Best Practices
- **WISHA-296-45** – Electrical Workers
- **IEEE 100** – The Authoritative Dictionary of IEEE Standards Terms (seventh edition)

#9 SAFETY AT HEIGHTS – FALL PROTECTION WHEN PERFORMING AERIAL WORK

PRACTICE STATEMENT: Fall Protection Equipment (FPE) shall be used above 4 feet when ascending, while in the working position, when changing positions, descending, and/or performing rescue operations.

PRACTICE DESCRIPTION: Fall hazards associated with aerial work shall be assessed and fall hazard mitigation plans developed. Fall Protection Device shall be “engaged” ground-to-ground.

- A. Climbers shall be competent in the application of all necessary fall protection methods used for the fall hazard mitigation of the tasks that will be performed.
- B. The following information must be considered and addressed on the job briefing form when planning aerial work:
 - Identify tasks to be performed while working aloft.
 - Client/Owner Fall Protection policies, procedures, and hazard analysis documentation as applicable.
 - Identify suitable anchorage points that are going to be used for the task to be performed.
 - Employers shall address rescue considerations and develop appropriate procedures that will allow successful performance of a given rescue technique for varied field conditions.
 - Determine/Identify necessary FPE and/or Work Positioning Equipment (WPE).
 - Determine climber qualification in the use of FPE and/or WPE.
- C. FPE/WPE shall be inspected and used in accordance with the manufacturer’s instructions and guidelines.
- D. Company policies shall apply when the conditions of this Best Practice cannot be met. Alternative work methods ensuring climber safety shall be identified, communicated to all affected climbers, implemented, and documented as part of the job briefing process.
- E. Climbers shall be trained and competent in the care, use, and inspection of the equipment used to conform to this Best Practice. Climbers must be trained in the selection and safe use of the equipment/system. Training shall only be conducted by qualified trainers.
- F. Visual inspections shall be performed prior to, and during climbing, to ensure that the structure is in acceptable condition for the safe execution of the tasks to be performed.
- G. This Best Practice applies to all climbers including those that perform rescue. Rescue application should be predetermined as early as possible, but no later than during the pre-job briefing, based on rescue needs such as timeliness and consideration given to the characteristics of the structure that rescue is being performed on.

BENEFITS: To eliminate injuries and fatalities associated with falls while performing work aloft.

REFERENCE:

ANSI Z359.2 – 2007

CSA Z259.14-01

29 CFR 1910.66 App C

29 CFR 1926.500 – 503

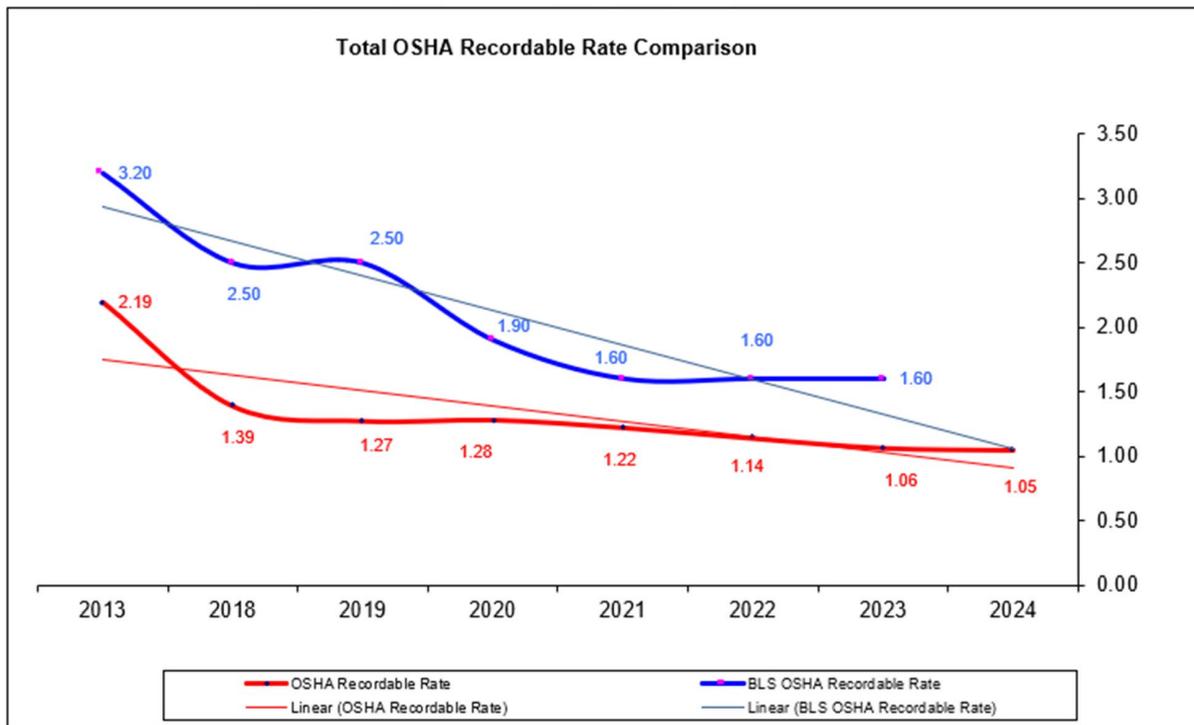
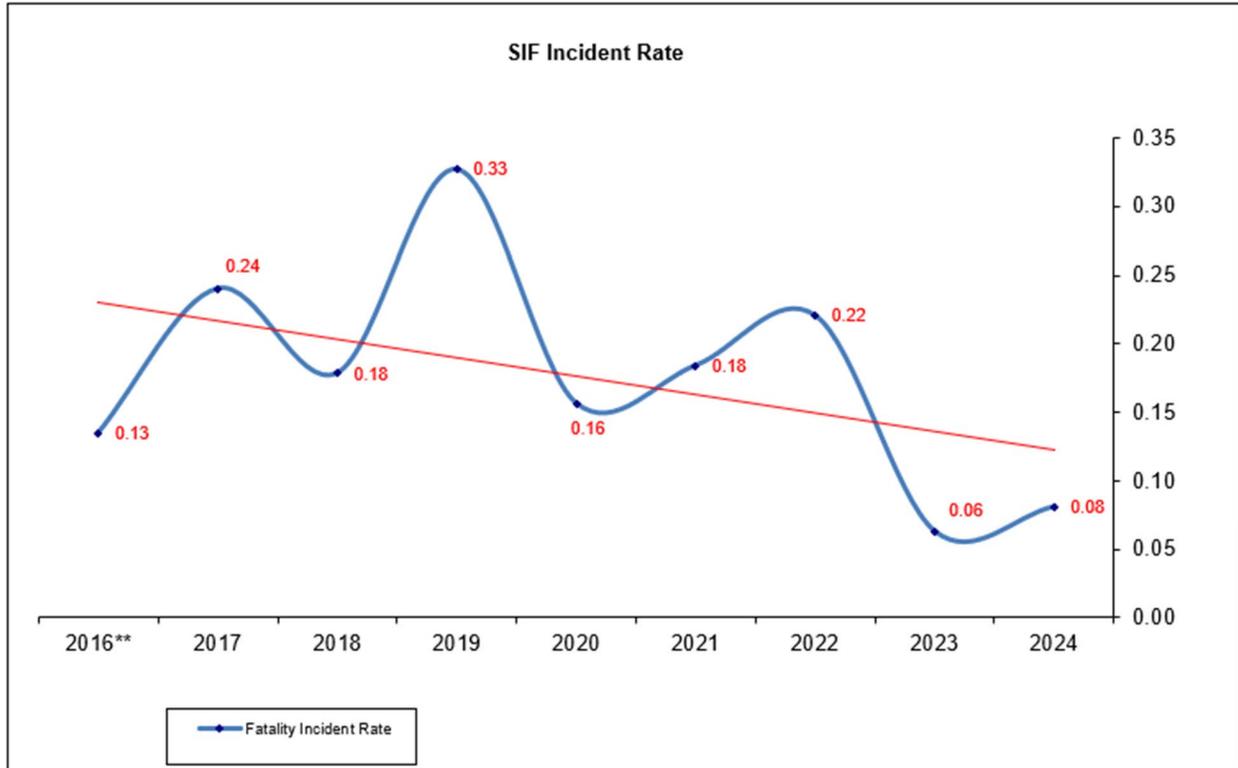
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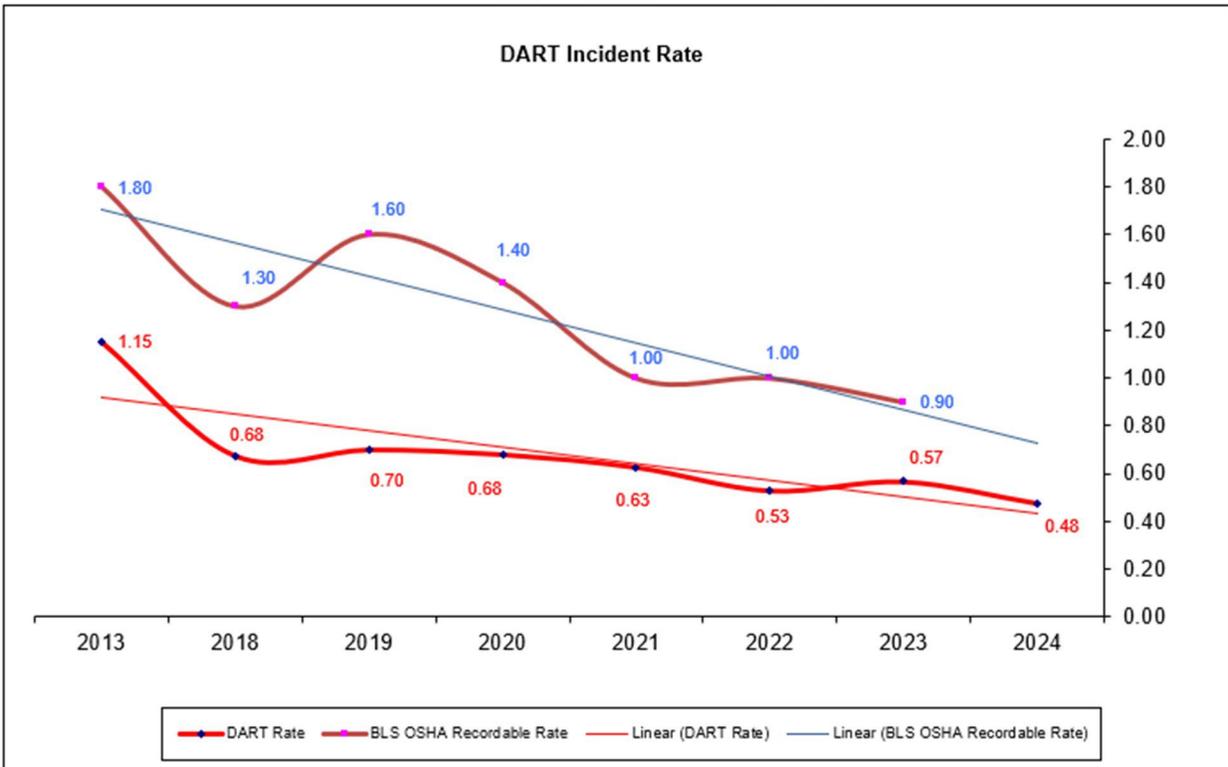
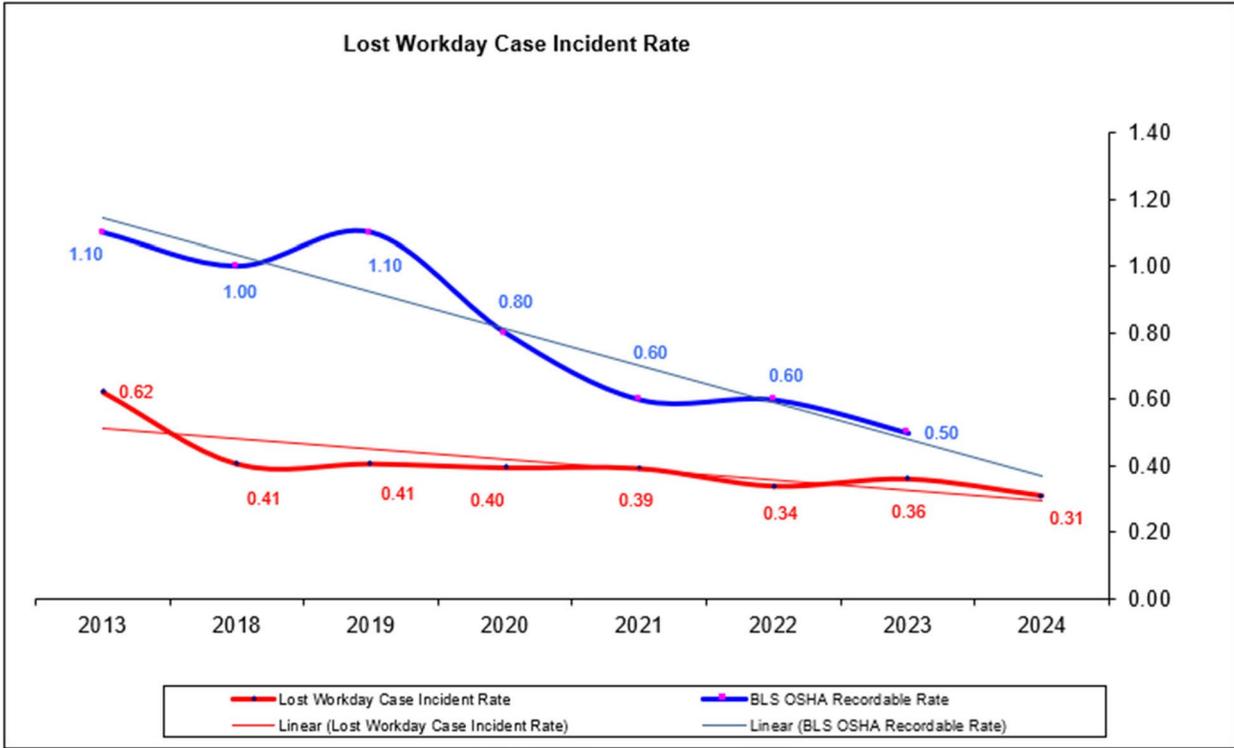
Best Practices utilized by OSP members for lattice structures.

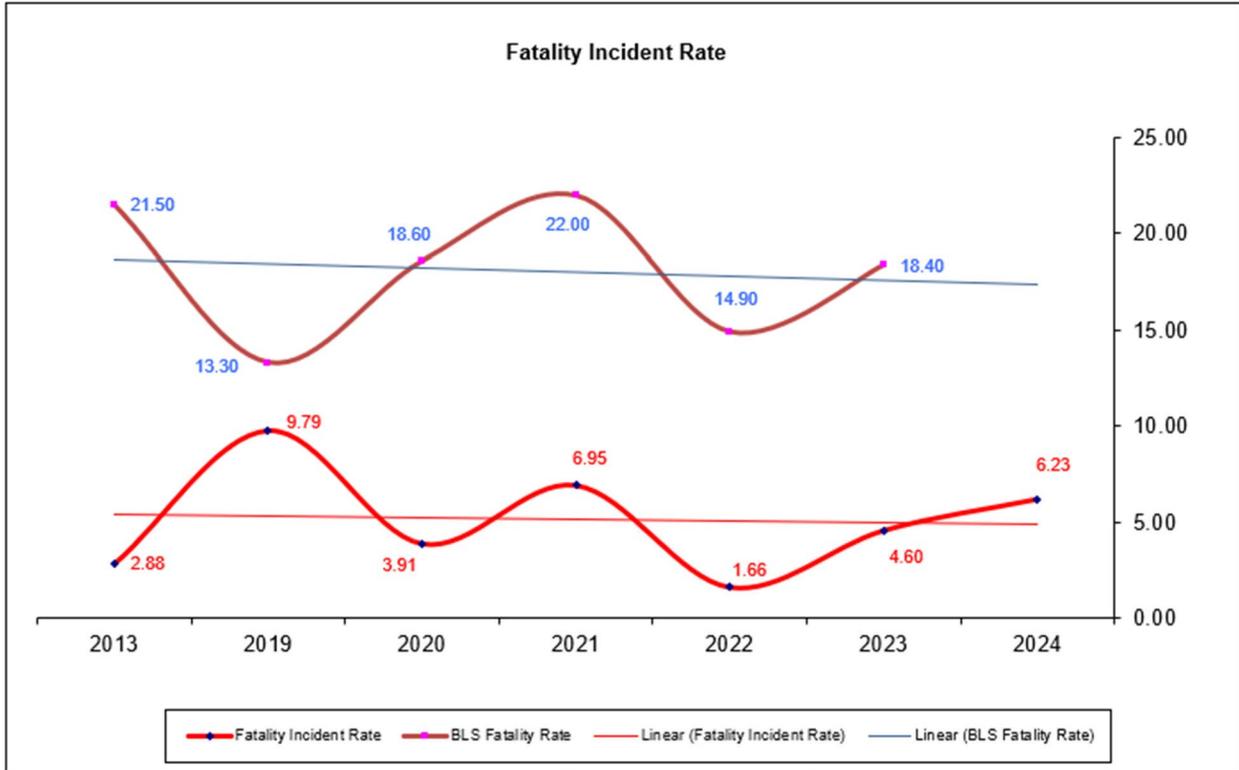
IEEE 1307 – IEEE Standard for Fall Protection for Utility

Work Example FHA attached.

Appendix C – Baseline Data Graph TCIR, LTIR, DART, Fatalities







<i>as of 31 Dec 2024</i>	<i>Man Hours Worked</i>	SIF Incident Rate (see note below)	
		<i>Number of SIF</i>	<i>Partnership SIF Incident Rate</i>
2024	128,437,422	52	0.08
2023	130,457,865	41	0.06
2022	120,581,148	133	0.22
2021	115,110,130	106	0.18
2020	102,178,417	80	0.16
2019	102,115,211	167	0.33
2018	92,938,987	83	0.18
2017	84,030,858	101	0.24
2016**	83,179,680	56	0.13
2015	69,395,665	n/a	
10 Year Combined	1,028,425,383	819	

as of 31 Dec 2024	Man Hours Worked	OSHA Recordable Rate		Lost Workday Case Incident Rate		Restricted Workday Case Incident Rate		Other Recordable Incident Rate		DART Rate	Fatality Incident Rate (see note below)	
		Number of OSHA Recordable Injures	OSHA Recordable Rate	Number of Lost Workday Cases	Lost Workday Case Incident Rate	Number of Restricted Workday Cases	Restricted Workday Case Incident Rate	Number of Other Recordable Cases	Other Recordable Incident Rate	LW & RW Case Incident Rate Combined	Number of fatalities	Partnership Fatality Incident Rate
2024	128,437,422	673	1.05	200	0.31	106	0.17	322	0.50	0.48	4	6.23
2023	130,457,865	694	1.06	236	0.36	134	0.21	321	0.49	0.57	3	4.60
2022	120,581,148	687	1.14	205	0.34	114	0.19	367	0.61	0.53	1	1.66
2021	115,110,130	697	1.21	221	0.38	137	0.24	335	0.58	0.62	4	6.95
2020	102,178,417	655	1.28	202	0.40	146	0.29	305	0.60	0.68	2	3.91
2019	102,115,211	650	1.27	208	0.41	150	0.29	287	0.56	0.70	5	9.79
2018	92,938,987	645	1.39	189	0.41	125	0.27	322	0.69	0.68	9	19.37
2017	84,030,858	646	1.54	174	0.41	156	0.37	308	0.73	0.79	8	19.04
2016**	83,179,680	650	1.56	177	0.43	279	0.67	322	0.77	1.10	1	2.40
2015	69,395,665	657	1.89	200	0.58	144	0.42	309	0.89	0.99	7	20.17
10 Year Combined	1,028,425,383	6,654	1.29	2,012	0.39	1,491	0.29	3,198	0.62	0.68	44	8.56

Appendix D – Tables, Charts, Graphs

Table 1 –2020 to 2024 SIF Event Classification

SIF Categories Appendix A – EEI SIF	2020	2021	2022	2023	2024
Fatality	2	4	1	3	4
Amputations	12	10	6	2	5
Head Trauma	2	5	0	0	
Trauma/Injury To Internal Organ	2	1	0	3	3
Fractured Bones with Surgery	32	49	78	18	30
Acute Traumatic Herniated Disc	0	0	1	0	0
Burns 2 nd & 3 rd	13	23	23	8	7
Eye Injuries	0	0	0	0	0
High Pressure Injection	0	0	3	0	0
Heat Stroke	2	2	2	2	0
Dislocation Major Joint	0	4	4	0	1
Electrical Contact Injuries (new 2023)	N/A	N/A	N/A	3	2
Vascular Trauma (new 2023)	N/A	N/A	N/A	1	0
Acute Chemical or Radiological Exposure (new 2023)	N/A	N/A	N/A	0	0
Other	0	0	1	1	0
Previous Definition – Tendon Tear Complete	12	8	9	N/A	N/A
Previous Definition - Internal Stitches Required	3	0	5	N/A	N/A
Grand Total	80	106	133	41	52

Table 2 – Electrical Contacts and Arc Flashes Best Practice

Best Practice – Electrical Contacts and Arc Flashes	2024
CRADLE-TO-CRADLE USE OF INSULATING RUBBER GLOVES AND SLEEVES	3
Job Briefings	2
I&I TECHNIQUES FOR THE LIVE LINE TOOL METHOD ON DISTRIBUTION	2
Insulate & Isolate Techniques for the Rubber Glove Method	1
No Violation	3
Total	11

Table 3 – Fatality Yearly Comparison

Injury Classification	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Electric Contact	1	5	3	3	1	3	0	2	2	20
Caught Between (*1)	0	0	2	0	0	0	0	1	2	5
Fall	0	2	1	2	0	0	0	0	0	5
Motor Vehicle	0	1	0	0	0	1	1	0	0	3
Struck By (*1)	0	0	1	0	1	0	0	0	0	2
Misc./Other (*2)	0	0	2	0	0	0	0	0	0	2
Grand Total	1	8	9	5	2	4	1	3	4	37

***2018 – Helicopter Events**

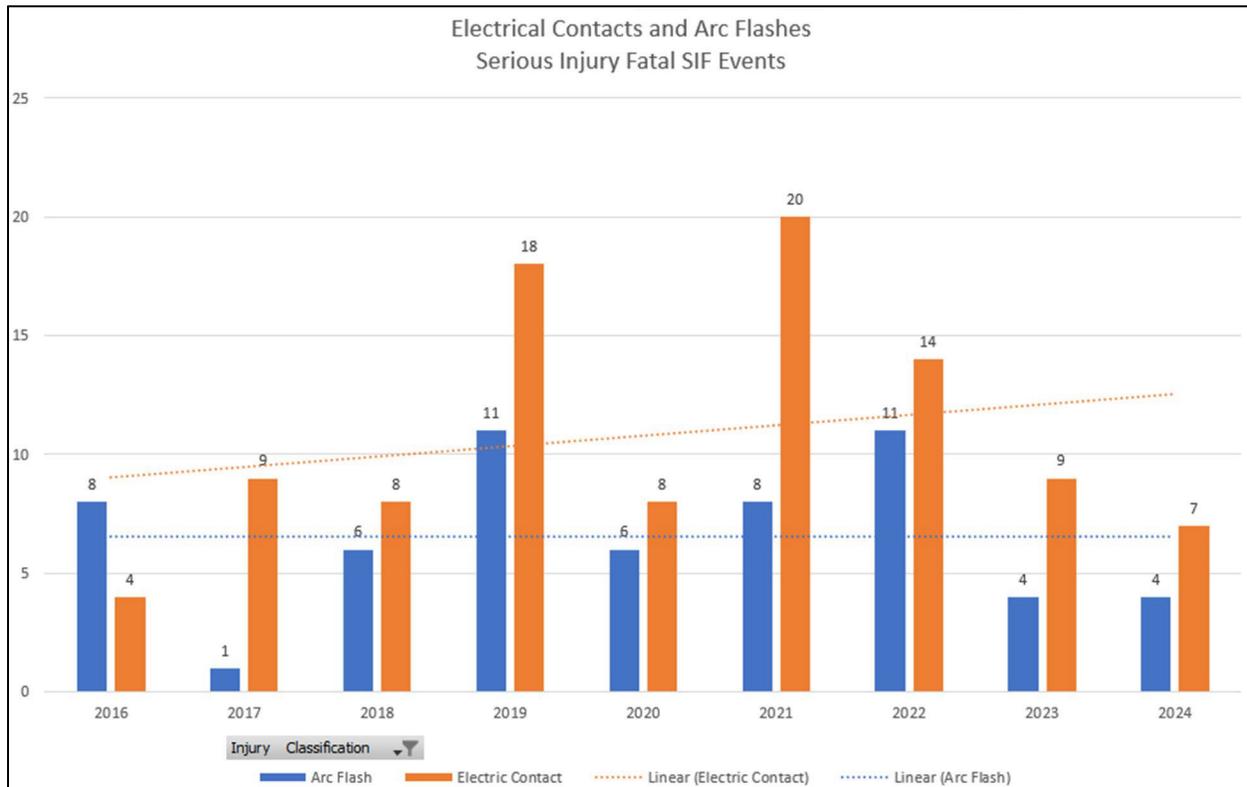


Figure 1 – Electrical Contact and Arc Flash

Table 4 – 2020 to 2024 SIF Fractures General Activity

General Activity SIF Fractures	2020	2021	2022	2023	2024
Pole/Tower/Structure -Assembly/Disassembly	4	1	5	4	9
Climbing	1	1	2	2	5
Materials Handling Manual	4	4	13	0	4
Materials Handling Mechanical	3	5	3	2	3
On Equipment	1	2	6	2	3
Walking	5	3	15	2	2
Operating Vehicle/Equipment	4	6	5	0	1
Conductors Installing/Removing	3	3	8	2	1
Equipment Assembly/Disassembly	4	2	5	0	1
Digging/Excavation Manual	0	1	0	0	1
Standing	1	8	2	0	0
Tools Manual	0	5	1	0	0
Other	0	2	0	1	0
Access /Egress	1	1	3	0	0
Cutting/Welding/Grinding	0	0	1	0	0
Cutting Hand Tools	1	0	0	0	0
Aerial Work	0	0	3	2	0
Work Area Protection	0	0	0	1	0
Driving/Passenger	0	5	6	0	0
Grand Total	32	49	78	18	30

Table 5 – SIF Fractures by Injury Classification

SIF Type	Injury Classification	2020	2021	2022	2023	2024
05 Fractured bones	Fall From Elevation	N/A	N/A	1	4	13
	Caught Between	7	15	24	0	12
	Struck By	6	16	14	11	11
	Electric Contact/Arc Flash	0	0	1	0	11
	Slip/Trip/Falls	16	11	24	2	3
	Motor Vehicle	1	7	4	1	2
	Cuts/Punctures	0	0	7	0	0
	Strains/Sprains	1	0	2	0	0
	Misc./Other	1	0	0	0	0
Laceration	0	0	1	0	0	
Grand Total		32	49	78	18	52

Table 6 – Best Practice

2024 Best Practice	Total BP 2024
Job Briefings	5
CRADLE-TO-CRADLE USE OF INSULATING RUBBER GLOVES AND SLEEVES	3
Administrative Controls	2
I&I TECHNIQUES FOR THE LIVE LINE TOOL METHOD ON DISTRIBUTION	2
Safety at Heights	1
Insulate & Isolate Techniques for the Rubber Glove Method	1
Grand Total	14

Table 7 – Lineman SIF Events

Lineman Injury Trends	2020	2021	2022	2023	2024
Top work activity	Installing & Removing conductors	Installing & Removing conductors	Installing & Removing conductors	Aerial Work	Pole/Tower/ Structure Assembly/ Disassembly & Climbing
SIF top 2 Injury types	Fractures and Burns	Fractures and Burns	Fractures and Burns	Fractures and Burns	Fractures and burns
SIF top 2 Injury types	Fractures 2 Times more frequent	Fractures 2 Times more frequent	Fractures 18 Burns 23	Fractures 6 Burns 6	Fractures 19 Burns 4
Work type - Distribution.	60.61%	69.23%	66%	65%	63.64%
Work type - Transmission.	33.33%	28.85%	25%	35%	33.33%
Work type - Substation	0.00%	1.92%	7%	0%	0%
Work type - Other	6.06%	0.00%	2%	0%	3.03%

Table 8 - Apprentice SIF Events

Apprentice Injury Trends	2020	2021	2022	2023	2024
Top work activity	Installing & Removing conductors; equipment assembly /disassembly; access/egress; aerial work; climbing (equally)	Pole/Tower/Structure Assembly/Disassembly ; Materials Handling Manual; Standing; Conductors installing/Removing; climbing	Walking	Pole/Tower/Structure Assembly/Disassembly; Materials Handling Mechanical	Grounds Installing removing; on equipment
SIF top 2 Injury types	Fractures and Burns	Fatality & Amputations	Fracture	Fracture	Fracture & Dislocation
Work type - Distribution	35.71%	53.85%	69.57%	75%	50%
Work type - Transmission	57.14%	38.46%	17.39%	25%	50%
Work type - Substation	0.00%	7.69%	13.04%	0%	0%
Work type - Other	7.14%	0.00%	0.00%	0%	0%

Table 9 – SIF Events Job Title Analysis

Only showing information for specific job titles: Apprentice Lineman; Lineman; Supervision

2024 Injury Classification & Job Title	Apprentice Lineman	Supervision	Lineman	Grand Total
Arc Flash	0	2	2	4
Caught Between	0	2	5	7
Electric contract	0	1	6	7
Fall From Elevation	2	1	10	13
Motor Vehicle	0	0	2	2
Slip/Trip	0	0	2	2
Struck by	0	3	6	9
Grand Total	2	9	33	44

2024 SIF Classification & Job Title	Apprentice Lineman	Supervision	Lineman	Grand Total
Fatalities	0	1	2	3
Amputations	0	1	3	4
Internal Injury or Trauma	0	0	3	3
Fractures	1	4	19	24
Burns	0	3	4	7
Dislocations	1	0	0	1
Electrical Contacts	0	0	2	2
Grand Total	2	9	33	44