

Electrocution – Inspection #1074584

A **43 year old male employee** was fatally electrocuted at a saw mill when he came into contact with a piece of metal covering an electrical cord. The mill was a recent acquisition of the owner and was being powered by a La Marche 300kw generator driven by GM Detroit Diesel engine. The generator was not properly grounded at the time of the accident. The saw mill was operating at 480 volts. In the past, sheet metal pieces had been welded onto the frame of a dust conveyor in an attempt to help the dust flow onto the conveyor. Cut lumber had fallen and damaged the sheet metal, breaking some of the welds. The damaged pieces of metal were removed and placed on the floor of the mill covering the 12/4 flexible cord powering the dust conveyor motor. A hard rain shower had come through the area earlier in the day, and the mill's concrete pad had standing water in places. The employees stated that they had been walking across the sheet metal pieces that were lying on the flexible cords throughout the day. The victim was a mechanic for the facility, and worked in all areas repairing and installing equipment. On the day of the incident, the victim had been in the saw mill area talking with other employees. They stated that he walked over to the saw mill, and leaned against the dust conveyor reaching for a piece of lumber on the band saw when he received an electric shock. The two witnesses went to assist the victim, and they pulled him free of the machine. The victim died shortly after arrival at the hospital. The exact cause of the electrocution was not determined due to equipment repair prior to the inspection. However, it was concluded that the flexible cord powering the motor of the dust conveyor system was exposed to damage.

Citation(s) as Originally Issued

A complete inspection was conducted at the accident scene. Some of the items cited may not directly relate to the fatality.

Citation 1 Item 1

TCA 50-3-105(1)	Each employer did not furnish to each of its employees conditions of employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious injury or harm to its employees were exposed to: In that the employer did not provide a safe work environment for the employees to work in as it documented in the following instances; a) Employees were not required to wear seat belts while operating the powered industrial trucks throughout the facility; b) The job made below the hook lifting devices were not designed or rated with any type of load capacity rating. Among other methods, one feasible and acceptable abatement method to correct this hazard is to a) provide and require seat belt use on all powered industrial trucks and b) have the below the hook lifting devices designed and rated with a lifting capacity in excess of what is being lifted at the facility.
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Citation 1 Item 2

29 CFR 1910.22(a)(1)	All places of employment, passageways, storerooms or service rooms were not kept clean and orderly or in a sanitary condition: In that the floor in the following areas was not kept clean and orderly to prevent employees from being injured due to material stored haphazardly in these locations; a) floor of the saw mill with band saw blade storage; b) The metal fabrication area of the steel shop; and c) Overhead storage area in the steel shop.
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Citation 1 Item 3

29 CFR 1910.106(g)(9)	Fire extinguisher(s) having a minimum approved classification of 6 B, C were not provided and located so as to be within 75 feet of each pump, dispenser, underground fill pipe opening, or lubrication or service room: In that there was not a portable fire extinguisher available for use within 75 feet of the flammable liquid diesel storage and dispensing tank adjacent to the small tank building.
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Citation 1 Item 4

29 CFR 1910.132(d)(1)	The employer did not assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE): In that the employer did not conduct a hazard assessment of the workplace to determine what personal protective equipment was necessary to protect the workers from head injuries, eye injuries and foot injuries from struck, by and crushed by hazards.
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Citation 1 Item 5

29 CFR 191.133(a)(1)	Protective eye equipment was not required where there was a reasonably probability of injury that could be prevented by such equipment: In that the employees throughout the facility were not required to wear eye protection in areas where the potential for eye injuries from foreign bodies coming into contact with the eyes was present.
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Citation 1 Item 6

29 CFR 1910.135(a)(1)	The employer did not ensure that each affected employee wear a protective helmet when working in areas where there is a potential for injury to the head from falling objects: In that the employees were working throughout the facility where there was the potential for them to be struck in the head by falling materials and they were not provided with nor required to wear head protection.
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Citation 1 Item 7

29 CFR 1910.151(c)	Where employees were exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body were not provided within the work area for immediate emergency use: In that the employees used Muriatic Acid which is a corrosive to clean concrete form the windshields of the concrete trucks and there was no quick drenching or eye wash station in the area of the concrete mix plant where the acid was being used.
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Citation 1 Item 8a

29 CFR 1910.178(l)(1)(ii)	The employer did not ensure that each operator had successfully completed the training required by paragraph (l), except as permitted by paragraph (l)(5), prior to permitting an employee to operate a powered industrial truck: In that none of the employees in the facility had gone through any form of powered industrial truck training prior to them being released to operate the equipment throughout the facility.
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Citation 1 Item 8b

29 CFR 1910.178(l)(6)	The employer did not certify that each operator has been trained and evaluated as required by this paragraph (l): In that the employer did not certify that any of the employees that operate the powered industrial trucks throughout the facility were trained and evaluated as required.
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Citation 1 Item 8c

29 CFR 1910.178(n)(4)	Industrial truck driver(s) were not required to slow down and sound the horn at cross aisles and wherever vision was obstructed: In that the employees were traveling in and out of the buildings where vision was obstructed and cross traffic was possible and they were not required by the employer to slow down and sound the horn.
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Citation 1 Item 8d

29 CFR 1910.178(q)(7)	Industrial trucks were not examined before being placed in service: In that no powered industrial truck inspections were conducted to ensure the forklifts were in safe condition prior to using them.
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Citation 1 Item 9

29 CFR 1910.179(j)(2)(iii)	Monthly inspections of hooks, with a certification record which includes the date of inspection, the signature of the person who performed the inspection and the serial number, or other identifier, of the hook inspected, were not performed: In that the hooks on the overhead cranes being used in the facility were not being inspected on a monthly basis to ensure that they were not bent or cracked or had any other deformation that could result in failure of the hook.
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Citation 1 Item 10

29 CFR 1910.179(n)(4)(i)	The upper limit switch of each hoist was not tried out under no load, at the beginning of each operator's shift: In that the employees operating the overhead cranes on a daily basis were not ensuring that the upper limit switch of the cranes functioned properly.
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Citation 1 Item 11a

29 CFR 1910.184(d)	Each day before being used, the sling and all fastenings and attachments were not being inspected for damage or defects by a competent person designated by the employer: In that the chain slings located throughout the facility were not being inspected on a daily basis to ensure that they were not damaged and that they were rated for the load to which they were being used to lift.
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Citation 1 Item 11b

29 CFR 1910.184(e)(1)	Alloy steel sling(s) did not have permanently affixed durable identification stating size, grade, rated capacity, and reach: In that the chain slings located throughout the facility were not equipped with any form of identification stating the reach and capacity.
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Citation 1 Item 11c

29 CFR 1910.184(e)(3)(i)	Thorough periodic inspections of alloy steel chain slings in use were not made on a regular basis: In that the chain slings located throughout the facility were not being inspected at regular intervals to ensure that the slings did not have excessive wear, defective welds, deformation and increase length.
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Citation 1 Item 11d

29 CFR 1910.184(e)(3)(ii)	Records of the most recent month in which each alloy steel chain sling was thoroughly inspected were not available for examination: In that the chain slings located throughout the facility were not being inspected at regular intervals and the employer was not maintaining any records to indicate that the inspections were being maintained.
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Citation 1 Item 12

29 CFR 1910.212(a)(1)	One or more methods of machine guarding was not provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks: In that the unused portion of blade on the miter band saw and the flywheel on the metal shear were not provided with adequate guarding to prevent employees from coming into contact with rotating parts of the machines.
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Citation 1 Item 13

29 CFR 1910.212(a)(3)(ii)	Point(s) of operation of machinery were not guarded to prevent employee(s) from having any part of their body in the danger zone(s) during operating cycle(s): In that the shear located adjacent to the fueling area was not equipped with any point of operation guarding to prevent employees from having any part of their body in the danger zone while the machine was being used.
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Citation 1 Item 14

29 CFR 1910.219(c)(2)(i)	All exposed part(s) of horizontal shafting seven (7) feet or less from floor or working platform were not protected by stationary casing(s) enclosing shafting completely or by trough(s) enclosing sides and top or sides and bottom of shafting: In that the horizontal shaft from the belt and pulley to the blade was not guarded to prevent employees from becoming entangled in it while he saw was being operated.
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Citation 1 Item 15

29 CFR 1910.219(e)(1)(i)	Horizontal belts which had both runs seven feet or less from the floor level were not guarded with a guard that extended to at least fifteen inches above the belt: In that the horizontal belts located at dust conveyor, PVC saw, and air compressor were not adequately guarded to prevent employees from coming into contact with either one or both runs of the belts and pulleys.
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Citation 1 Item 16

29 CFR 1910.219(e)(3)(i)	Vertical or inclined belt(s) were not enclosed by guard(s) conforming to the requirements specified at 29 CFR 1910.219(m) and (o): In that the vertical and inclined belts located on the blower motor for the saw dust removal system in the sawmill was not guarded to prevent employees from coming into contact with it while it was in operation.
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Citation 1 Item 17

29 CFR 1910.219(f)(3)	Sprocket wheels and chains which were seven feet or less above floors or platforms were not enclosed: IN that the chain and sprockets under the feed conveyor, end of the green chain, and three main chain drive conveyors were not enclosed to prevent employees from coming into contact with the rotating parts.
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Citation 1 Item 18

29 CFR 1910.265(d)(2)(i)(b)	Log unloading areas were not arranged and maintained to provide a safe working area: In that the log storage area was not arranged and maintained so as to maintain a safe working area as the logs were not neatly stacked and the movement of a few logs could result in the pile of logs moving and shifting.
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Citation 1 Item 19

29 CFR 1910.265(d)(2)(i)(d)	Signs prohibiting unauthorized foot or vehicle traffic in log unloading and storage area were not posted: In that the log storage area was not posted with signage to keep unauthorized foot traffic out of the area where the area presented hazards of logs shifting and unstable storage piles.
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Citation 1 Item 20

29 CFR 1910.303(b)(1)(ii)	Electrical equipment was not free from recognized hazards, based on the mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided: In that the conduit located overhead in the small tank building had been damaged and had fallen down from overhead and was located approximately 4 feet above the floor at the east end of the building.
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Citation 1 Item 21

29 CFR 1910.303(b)(1)	Electrical equipment was not free from recognized hazards that were likely to cause death or serious physical harm to employees: In that the 12/4 flexible cord energized by a 280v generator, was used to power the motor of a conveyor that removes sawdust from the sawmill was not protected against damage as it was determined to be lying on the floor covered by large pieces of sheet metal over which employees were walking.
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Citation 1 Item 22

29 CFR 1910.304(g)(5)	The path to ground from circuits, equipment, and enclosures was not permanent, continuous, and effective: In that the generator being used to power the sawmill and associated equipment was not grounded and therefore no effective grounding was provided to the equipment powered by the generator.
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Citation 1 Item 23

29 CFR 1910.305(b)(1)(ii)	Unused openings in boxes, cabinets, or fittings were not effectively closed: In that the 240 volt electrical panel boxes in the restroom & small tank building were not provided with any means to cover the unused openings to prevent employees from coming into contact with the live exposed parts inside the boxes
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Citation 1 Item 24

29 CFR 1910.305(b)(2)(i)	Pull boxes, junction boxes, and fittings were not provided with covers approved for the purpose: In that the two 120 volt electrical switches in the large tank building, two junction boxes located on the air compressor and the junction box on the pedestal grinder, were not provided with covers to prevent employees from coming into contact with the live electrical parts that were left accessible.
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Citation 1 Item 25

29 CFR 1910.305(g)(1)(iv)(A)	Flexible cords and/or cables were used as a substitute for the fixed wiring of a structure: In that the employer was using flexible cords in place of permanent wiring in the steel shop and concrete mixing area to power permanently mounted equipment.
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Citation 1 Item 26

29 CFR 1910.305(g)(2)(ii)	Flexible cord and cables No. 14 and larger were repaired by splicing, which did not retain the insulation, outer sheath properties, and usage characteristics of the cord that was spliced: In that the flexible cord on the south side of the sawmill that was suspended on the structure of the mill and providing power to the cutting head of the mill was a SO 12/4 P-125-<SHA cord that was spliced but not so as to retain the insulation and outer sheath properties of the cord.
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Citation 2 Item 1

TDLWD Rule 0800-01-09-.06(2)	Employer did not ensure that work areas in which non-containerized hazardous chemicals are generated or produced as a result of the process or operation taking place in such work area contain a sign or placard identifying the hazardous chemicals and appropriate hazard warnings: In that the employees operated a propane powered forklift in the buildings were not marked that non-containerized carbon monoxide was being produced.
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Citation 2 Item 2

TDLWD Rule 0800-01-09-.07	Employees were not provided annual refresher training and information as specified in TDLWD Rule 0800-01-09-.07 on hazardous chemicals in their work area: In that the employer was not providing refresher training on the chemicals that the employees worked with and were exposed to such as acetylene, muriatic acid, and concrete along with all the other hazardous chemicals that were used in the facility.
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Citation 2 Item 3

29 CFR 1910.22(b)(1)	All places of employment, passageways, storerooms, and service rooms were not kept clean and orderly and in a sanitary condition: In that throughout the steel shop items were stored so that there were not clear aisles.
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Citation 2 Item 4

29 CFR 1910.22(d)(1)	In every building or other structure, or part thereof, used for mercantile, business, industrial, or storage purposes, the loads approved by the building official were not marked in a conspicuous place to which they relate: In that the overhead storage area in the steel shop was not marked as to the load that is could safely support and it was being used for the storage of truck parts and shelves with miscellaneous items.
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Citation 2 Item 5

29 CFR 1910.23(c)(1)	Open-sided floors and/or platforms four feet or more above adjacent floor or ground level were not guarded with standard railings (or equivalent) and toe board: In that the roll-up door on the south west side of the steel shop was opened for ventilation purposes and the resulting opening was not proved with a standard rail to prevent employee from falling from the 55 inch high surface.
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Citation 2 Item 6

29 CFR 1910.37(b)(2)	Each exit was not clearly visible and marked by a sign reading “Exit”: In that the exit door located in the mechanics shop and steel shop were not labeled with a sign reading “Exit” which could hamper the immediate egress from the buildings.
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Citation 2 Item 7

29 CFR 1910.151(b)	There was neither an infirmary, clinic, or hospital used for the treatment of all injured employees in near proximity to the workplace nor a person or persons adequately trained to render first aid: In that the hospital where all injured employees would be taken was more than 4 minutes form the facility and the employer did not ensure that someone was onsite trained and capable of rendering first aid.
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Citation 2 Item 8

29 CFR 1910.157(c)(1)	Portable fire extinguishers were not mounted, located and identified so that they were readily accessible without subjecting the employees to injuries: In that the portable fire extinguisher located at the saw mill was not identified so that it could be easily located in the event of a fire.
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Citation 2 Item 9

29 CFR 1910.157(e)(2)	Portable fire extinguishers were not visually inspected at least monthly: In that the portable fire extinguishers located throughout the facility were not inspected by anyone on a monthly basis to ensure they were in their designated locations, accessible, identified, charged and ready for immediate use.
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Citation 2 Item 10

29 CFR 1910.157(g)(1)	An educational program was not provided for all employees to familiarize them with the general principles of fire extinguisher use and the hazards involved with incipient stage fire-fighting: The employer had provided portable fire extinguishers for the employees to use to extinguish incipient stage fires and the employer had not trained the employees on how to properly use the extinguishers or the hazard associated with the incipient stage fire-fighting and when to stop and evacuate.
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Citation 2 Item 11

29 CFR 1910.215(a)(4)	Work rest(s) on grinding machinery were not adjusted closely to the wheel with a maximum opening of one eighth inch: In that the Powermatic pedestal grinder located in the steel shop had the work rest adjusted approximately ½ inch from the grinding wheel.
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Citation 2 Item 12

29 CFR 1910.253(b)(4)(i)	Oxygen cylinders were stored near highly combustible material, especially oil and grease; or near reserves stocks of carbide and acetylene or other fuel-gas cylinders, or near other substances likely to cause or accelerate a fire: In that the oxygen compressed gas cylinders and the acetylene compressed gas cylinders were stored together in a compressed gas cylinder rack outside the steel shop.
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Citation 2 Item 13

29 CFR 1910.303(g)(1)(ii)	The required working space about electric equipment rated 600 volts, nominal, or less to ground, was used for storage: In that the 480/277 and 600 volt electrical boxes in the steel shop, small tank building, and mechanic shop were blocked by stored items.
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Citation 2 Item 14

29 CFR 1910.305(b)(1)(i)	Conductors entering cutout boxes, cabinets, or fittings were not protected from abrasions: In the conductors entering the electrical junction box on the green chain were run through flexible conduit which had been separated from the box which allowed the individual conductors to be exposed to abrasion where they entered the box.
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Citation 2 Item 15

29 CFR 1910.305(g)(2)(iii)	Flexible cords were not connected to devices and fittings so that tension would not be transmitted to joints or terminal screws: In that the flexible cords in the cord powering the scale reader at the concrete mixing plant, and the cord powering the fluorescent light fixture in the mechanics shop were damaged at the plug connectors where tension was being transmitted to those joints.
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Photo 1 of 2 - The photograph shows generator used to power the saw mill and the dust conveyor. The generator was not provided with a ground.

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Photo 2 of 2 – The photograph shows the flexible cord run across the concrete floor at the mill and it was not protected from damage.