IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2010 4401

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
*Section 67 of the **Coroners Act 2008***

Inquest into the Death of: DWAYNE ROBERTSON

Delivered On:	6 December 2012
Delivered At:	Level 11, 222 Exhibition Street Melbourne 3000
Hearing Dates:	6 December 2012
Findings of:	PETER WHITE, CORONER
Representation:	Mr S. Russell on behalf of Westwoods Mr R. Ray, QC with Mr S. Stafford on behalf of Citipower Mr J. Murphy on behalf of Energy Safe Victoria Ms E. Watson on behalf of WorkSafe Mr R. O'Neill for Christopher Elliot
Police Coronial Support Unit	Senior Constable Kelly Ramsey, assisting the Coroner

I, PETER WHITE, Coroner having investigated the death of DWAYNE ROBERTSON

AND having held an inquest in relation to this death on 6 December 2012
at MELBOURNE
find that the identity of the deceased was DWAYNE CHARLES ROBERTSON
born on 12 June 1973
and the death occurred on 16 November 2010
at 158 City Road, Southbank 3006
from:

1 (a) HYPOXIC BRAIN INJURY

1 (b) ELECTROCUTION (LOW VOLTAGE)

in the following circumstances:

1. I find that Dwayne Robertson died on 16 November 2010 at the intensive care unit at the Alfred Hospital, 55 Commercial Road, Melbourne, from 1(a) an oxy brain injury, and 1(b), an electrocution as a result of a low voltage shock which was sustained some three days earlier, that is on 13 November at Hanover House, 158 City Road, Southbank.

2. In regard to the circumstances in which that injury was sustained, I adopt the report of Mr Johnson (attached) save the reference at paragraph 8 of that report to the suggestion that he was given access to the chamber by Citipower to run the earth conductor.

3. I have no further comments to make and I have no further recommendations to make and I thank counsel for their assistance. I am sure I speak for all present when I extend to Mr Robertson our sincere condolences for your loss.

I direct that a copy of this finding be provided to the following:

Mr David Robertson, next of kin
Senior Constable Mary White, Major Crime Investigation Unit, Investigating Member
Interested Parties

Signature:

PETER WHITE
CORONER
Date: 6 December 2012

energysafe VICTORIA

Report

of

CONTACT - SHOCK

Fatality – electrocution

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158 CITY Road

SOUTHBANK 3006 VIC

Incident Date – 13/11/2010

Investigation Date – 13/11/2010

ELECTRICAL INVESTIGATION

TO:	Director of Energy Safety
FROM:	Greg Johnson- Enforcement Officer
RE:	Contact - Shock
VICTIM:	Dwayne Charles Robertson
LOCATION:	158 CITY Road
	SOUTHBANK 3006 VIC
OCCURRENCE DATE:	13/11/2010
INVESTIGATION DATE:	13/11/2010

Synopsis

On or about 10:42 hours on Saturday 13th of November 2010 Energy Safe Victoria was informed of an Incident at 10:00 involving an licensed electrical worker receiving an electric shock. Energy Safe Victoria attended the scene at Hanover House, 158 City Road, Southbank.

The incident involved an electrical worker installing new unmetered sub mains from the main switchboard on the mezzanine floor to take off boxes on each of the six floors. The works also included the removal of existing mineral insulated metallic sheathed cables.

While installing the new earth conductor in the main switchboard the victim installed the earth conductor through the current transformer chamber. The supply to the chamber had not been isolated and there was access to live parts. During the course of this work the victim came into contact with live parts. He remained connected until a fellow employee removed him from supply.

The electrical supply was isolated by jamming the aluminum top plate of a 1.2m fiberglass ladder between the victim and the live parts. This ruptured the protection fuses in the substation isolating supply.

On the 16th of November 2010 the victim died of what is believed to have been complications of the electric shock.

INCIDENT REPORT

1. PRELIMINARY

At 10:42 AM on Saturday the 13th of November 2010, Energy Safe Victoria received notification from the National Response Centre (NRC) that the Metropolitan Fire Brigade (MFB) had reported an electrical incident at the abovementioned address. MFB advised NRC that an electrical worker had been electrocuted.

At 11:30 AM, I arrived on site and introduced myself to Constable Timothy Brannigan (37002) of Victoria Police. Also in attendance at this time was Daryl Taylor, Compliance Officer (Energy Safe Victoria) Damian Harris (CitiPower), Craig Westwood of Westwoods Electrical and Property Services Pty. Ltd., the MFB crew and several workers from Westwoods. Constable Brannigan informed me that there had been a work place incident that involved a worker that was installing new cables. He also informed me that the injured person was Dwayne Charles Robertson, (DOB 12/06/1973) a licensed electrical worker (A40694), an employee of Westwoods Electrical and Property Services and that he had been transported to the Alfred Hospital in a serious condition.

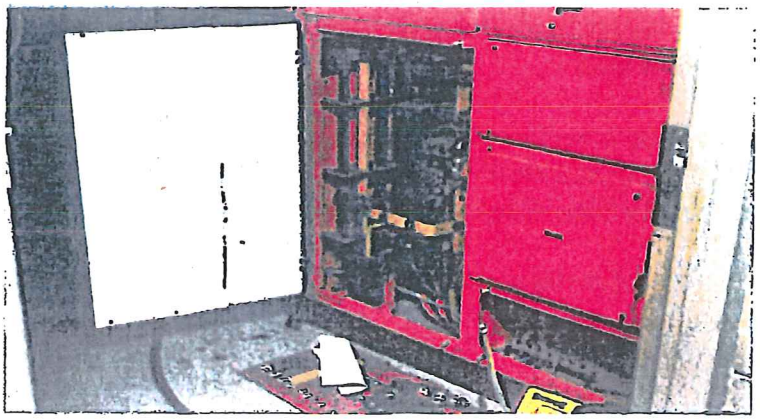
Information provided was that Christopher Archibald Elliot a fourth year electrical apprentice with Westwoods was a witness to the incident and that he had attempted to free the victim and raise the alarm.

Discussions on site determined that WorkSafe Victoria would be the lead agency for this incident.

After leaving site I assisted WorkSafe with the taking of Terry Long's statement at Energy Safe Victoria's Southbank office. Terry Long's statement indicated that he had discussion with Dwayne Robertson on what he required to be isolated. He also discussed the installation of the earth conductor, opened the CT chamber and what the safety issues would be if Dwayne chose to use this area to install the earth conductor as the bus bar in the CT chamber would be live. The CT chamber was left closed.

2. DESCRIPTION OF INCIDENT SCENE

The incident occurred in the Main Switchboard Room, located at the rear of the mezzanine floor of Hanover House, a six story office building.



3. ONSITE INVESTIGATION

On arrival at scene, Daryl Taylor and I were shown the location where the incident occurred by Station Officer David May (MFB). The scene consisted of a switch room approximately 3m deep and 2m wide. The switchboard was located on the north wall.

The center compartment, (current transformer chamber) was opened and had tools located in front of it.

A closer examination of the area, it was noticed that a 70mm sq insulated earth conductor was installed from a penetration through the west wall and the entering the switchboard via the top of the left cable way, it then entered the left side of the CT chamber and exited via the right side to the compartment locating the earth bar. Excess earth conductor was laying on the floor and out the access door. (refer photo 1)

An associated active conductor (185mm sq XLPE) was installed in the same manner but was in the unmetered riser main switch connection compartment located on the left side of the switchboard. The two other active and one neutral conductor where installed through the wall penetration and placed in the south west corner of the room.

I then inspected the unmetered riser main switch and noted that it had a distribution company lock on it and it was in the off position (Photo 5). No danger tags were located on the main switch.

Daryl Taylor and I then conducted a close inspection of the CT chamber and noted that Red and Yellow bar from the existing CT fuses had arc marks on them (refer photo 3). The Red, Yellow and Blue incoming supply bars had arc marks located on the connection bolts that connected the cables to the bars. There was also an arc mark on the right hand side of the CT chamber. (refer photo 2) The CT chamber was not isolated by the unmetered main switch that was locked off (refer photo 5).

A small 1.2m. fiberglass step ladder located outside the room had arc marks on the aluminum top cap. The arc marks on the top cap were consistent with distance between the marks on the right hand side of the CT chamber and the connection bolts. Christopher Elliot's statement to Police confirmed that the ladder was used to remove Dwayne Robertson from the electrical supply by jamming it between the bus bars and the victim (refer photo 2 and 4).

The victim had already been taken to hospital before ESV attended and there was no evidence of any protective clothing or equipment.

Located at the front of the CT chamber was a spanner roll, a cordless drill with a 32mm hole saw and numerous hand tools. Located under the connection bolts of the unmetered main switch was a ½ inch drive ratchet and socket.

Within the main switch room were electrical drawings that identified the installation being installed in the late 1970's. The electrical contractor, Westwoods Electrical and Property Services were replacing the original rising mains when the incident occurred.

An inspection of the substation it was noted that all 3, 400amp HRC fuses supplying the main switchboard had ruptured.

Compliance officers observed that there were3 a number of options to get the earth conductor to the earth bar without running it in the CT chamber. The earthing conductor could have been run on the cable tray located on top of the switchboard and down the cable riser located on the right hand side of the board.

Photos taken by Daryl Taylor.

4. SUPPLY SYSTEM

The installation is from a CitiPower indoor substation located on the ground floor via 3 x 400amp HRC fused installed in JW 4 holders. The substation was accessed via the car park. The substation was directly below the main switch room.

5. INSTALLATION

The main switchboard is located at the north end of the mezzanine floor. This supplies a number of main switches including the lift, public light and power and an unmetered rising main to take off boxes located on each floor. These then supply individual tenancies on that floor. The CT chamber would normally be sealed with a distribution company seal. The seal had been removed and the CT chamber door was in the open position.

6. EQUIPMENT

There was no evidence of and protective equipment such as rubber mats, face shields or LV gloves.

7. REGULATORY REQUIREMENTS

From the observations made on site, it appears that the electrical installation work was being done was in accordance with the requirements of AS/NZS 3000:2007 known as "Wiring Rules" but failed to comply with Section 43(4) of the Electrical Safety Act 1998 which states,

Section 43 (4)
A person carrying out electrical installation work must insure that adequate precautions are taken to prevent electric shock or other injury in the handling of electrical circuits or electrical equipment in the course of that work."

8. CONTRIBUTING FACTORS

The electrical contractor requested an isolation from CitiPower for the unmetered riser. This was done by CitiPower Customer Technical Assistant Terry Long at 8:00 that morning. Terry Long discussed with the victim the installation of the earth wire and running it through the CT chamber. Terry Long explained that the bus bar in the CT chamber was live.

There were a number of options to get the earth conductor to the earth bar without running in the CT chamber. The earth conductor could have been installed along a cable tray that was located on top of the switch board and down the cable riser at the right hand side of the board.

The victim was given access to the CT chamber by CitiPower to run the earth conductor. The evidence on site did not show that appropriate protective equipment and procedures as described in section 15 of the Code of Practice for Safe Electrical Work, Low Voltage electrical Installation and AS/NZS 4836. 2001, Safe work on Low-voltage electrical installation had been followed.

15. WORKING ON LIVE ELECTRICAL EQUIPMENT

General *- Rescheduling the work to a time when power can be isolated must be considered first. Working on live electrical equipment must only be considered as a last resort and when an adequate risk process has been undertaken. Suitable safety apparel must be worn and only tools and equipment appropriate for the work to be carried out must be used.*

15.1. ***Assessment*** *- An assessment of the associated risks prior to commencing any work on live electrical equipment must be made.*

15.2. ***Assistance*** *- Where in the judgment of the person doing the work that it cannot be carried out safely without assistance or a safety observer, then that person must be provided with that assistance, or the work delayed until isolation can be arranged.*

15.3. ***Competency*** *- Any persons undertaking work on live electrical equipment must be skilled and competent in the work to be carried out.*

15.4. ***Precautions*** *- The person responsible for authorising work to be carried out live must specify any particular precautions to be taken to eliminate hazards and to prevent injury. When work is to be carried out on or near live low voltage equipment, precautions must be taken to prevent the likelihood of simultaneous contact with conductors or conducting objects at different potentials.*

15.5. ***Safety Apparel*** *- Electrical workers and their assistants must wear appropriate protective clothing suitable for the task when working on, or in close proximity to, live (energised) electrical equipment. Protective clothing worn by personnel must be of correct fit and in good condition. Refer to section 12 - Safety Apparel.*

15.6. ***Earthing*** *- When working on live electrical equipment having earthed metal, precautions must be taken to ensure earthing continuity is maintained to any component part of the equipment at all times. Bonding conductors may be required to be installed when removing electrical equipment from earthed metal, e.g. live component part separated from its connected earthing medium. Bonding conductors must be rated to withstand the 'let through' energy of the primary protection without failing.*

15.7. ***Neutral Connections*** *- Particular care should be taken when removing neutral connections as tests may have indicated a de-energised situation. However, when these connections are removed, a voltage may be present between conductors or between conductors and earth.*

15.8. ***Barriers & Insulation Mediums*** *- Only conductors at one potential should be worked on at any one time and insulated barriers should be utilised in the work area between conductors of different phases or voltage potentials. Insulating mats or barriers should be used between electrical workers and conductors and between electrical workers and earth including building structures such as concrete and steel which may be earthed.*

9. CONCLUSION

The male victim received an electric shock when he came in contact with live parts of the electrical installation while installing an earth conductor for a new rising main system.

This prolonged exposure to the electrical current is likely to have caused serious injury.

As the current was limited due to the resistance of the body of the victim and other influences, the characteristics of the HRC fuses would not have been expected to have operated and opened.

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Greg Johnson
Enforcement Officer
09/05/11

SUMMARY

INCIDENT DETAILS

Victim:	Dwayne Charles Robertson
Street Name:	158 CITY Road
Location:	SOUTHBANK 3006 VIC
DATE/TIME OF INCIDENT:	13/11/2010
	10:00

OTHER INVESTIGATOR DETAILS

(Police/CFA Etc)

Name:	Peter Collins
Title:	Senior Investigator
Organisation:	Work Safe
	1 Yarra Street
	GEELONG 3220
Contact Telephone:	03 5226 1200

Name:	Mary White
Title:	Detective Senior Constable
Organisation:	Victoria Police
	637 Flinders Street
	MELBOURNE 3005
Contact Telephone:	03 9247 5413

ESV INVESTIGATOR DETAILS

Name:	Greg Johnson
Title:	Enforcement Officer
	PO BOX 262
	COLLINS STREET WEST 8007
Contact Telephone:	03 9271 5446

PHOTOS

Photo 1. This image is of the view of Switch room looking from east door.

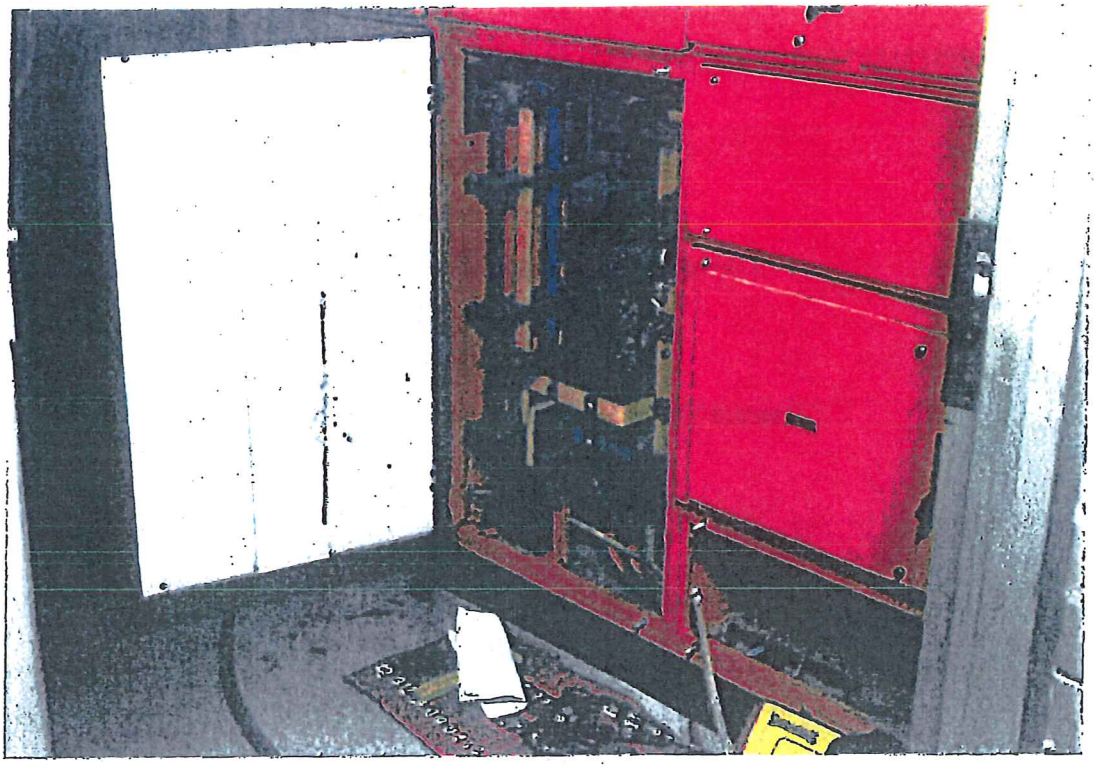

Photo 2. This image shows the Earth conductor passing though the CT chamber and the arc marks on bus bars and frame of CT chamber and earth conductor that was installed.
Red arrows indicate location of arc marks and green arrow indicates earth conductor.

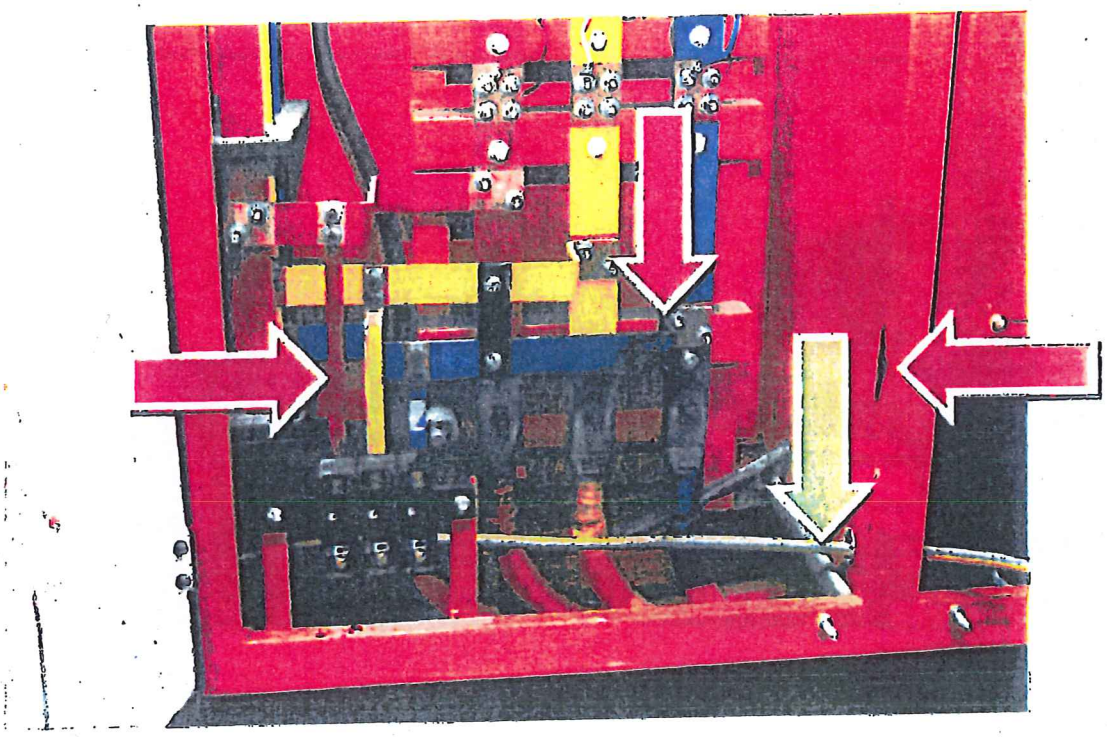

Photo 3. This image shows arc marks on bus bar supplying CT fuses. Red arrows indicate location of arc marks and green arrow indicates earth conductor.

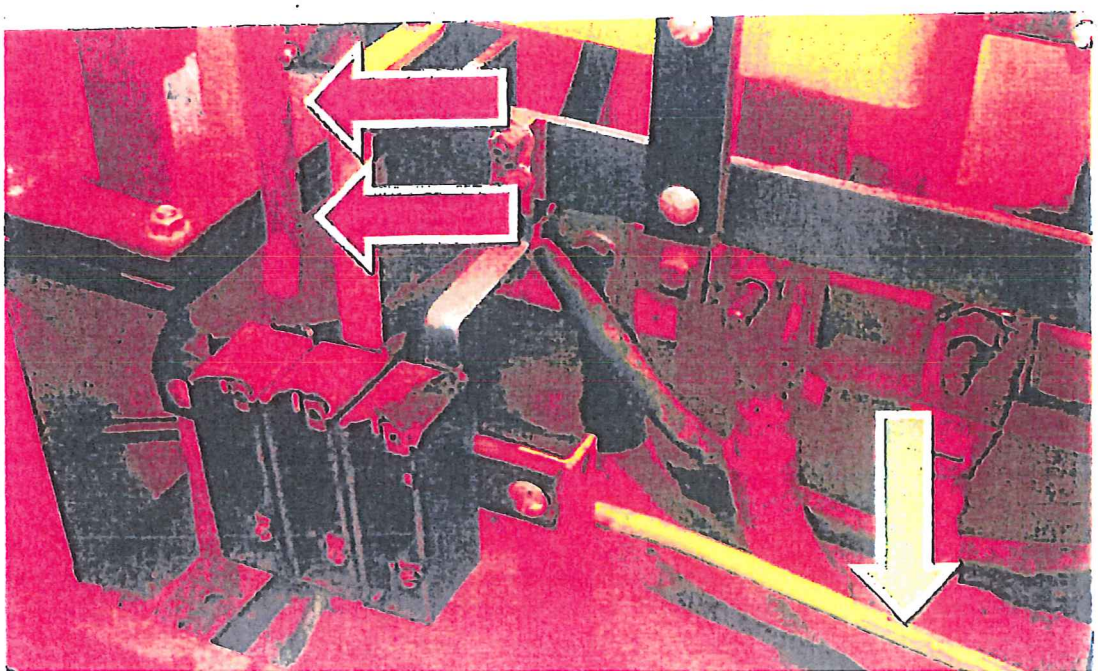

Photo 4. This image shows the arc marks on the aluminum top cap of the ladders. Red arrows indicate location of arc marks.

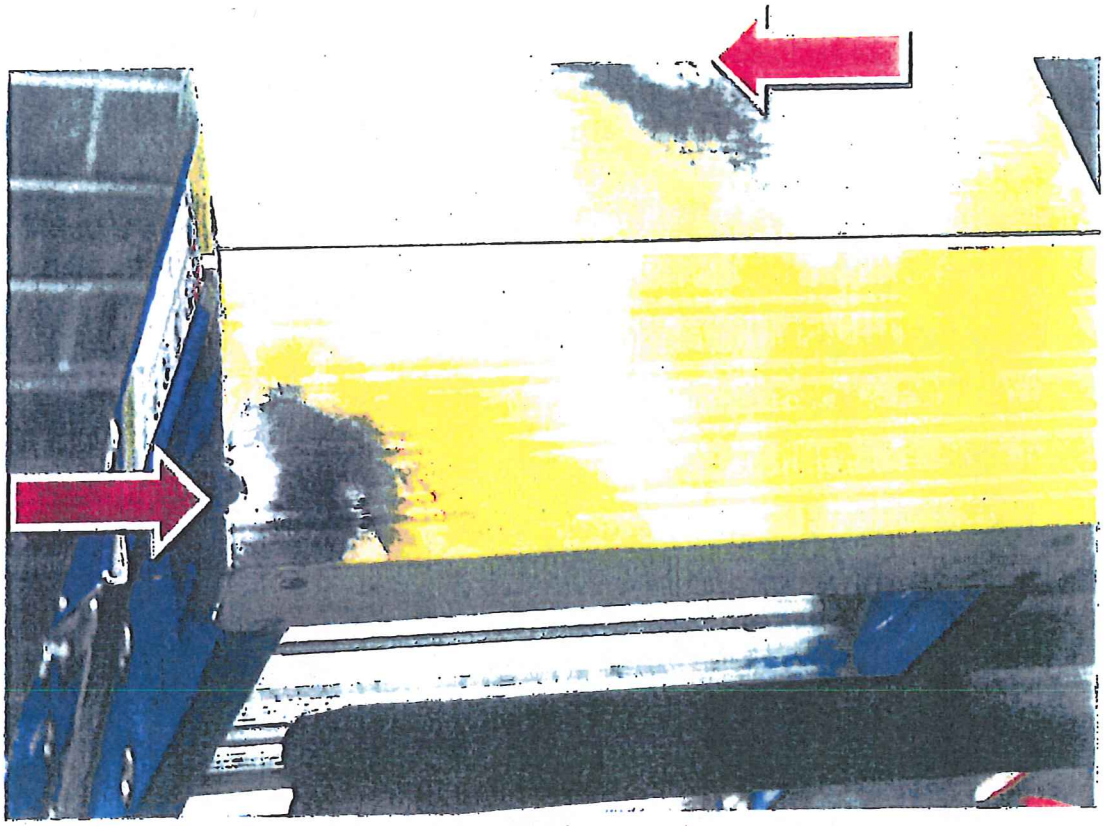

Photo 5. This image shows the locked off main switch (bottom left). Blue arrow show locked mainswitch.