


Plant Safety




Objective

- ◆ Prevent accidents by reminding you how other miners in our industry have been injured working in and around plants.
- ◆ “Contractor Safety” from a contractors’ perspective.

Success

- ◆ **Finishing your career without serious injury or impairment.**
 - ◆ **Your coworkers finishing their career without serious injury and impairment.**
- 
- A stylized, jagged mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Being Responsible

- ◆ **Company to provide us with the tools and training to do our jobs.**
 - ◆ **Our responsibility use this training, know the laws, and abide by them.**
- 
- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

◆ **RESPECT**

◆ **SELF DISCIPLINE**

◆ **CONSISTENCY**

Changes in our industry

- ◆ **1978 we employed 288,577 miners and lost 136.**
- ◆ **2018 we employed 249,099 miners and lost 16.**
- ◆ **2019 we had 13 fatal accidents - 8**



100% of 2020 fatal accidents
occurred at plants



28% of 2019 fatal accidents occurred in and around plants.



38% of 2018 fatal accidents occurred in and around plants.



46% of 2017 fatal accidents occurred in and around plants.



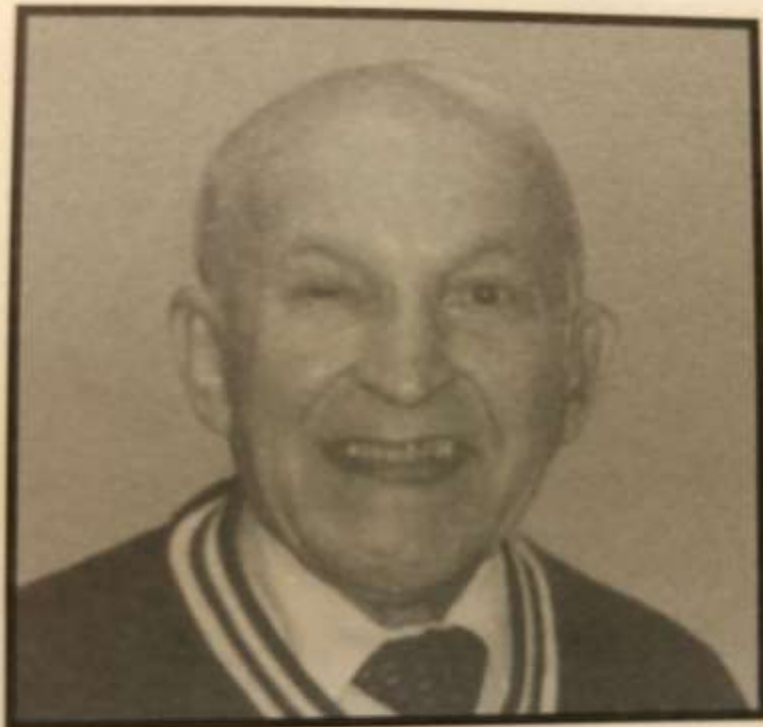
30% of 2016 fatal accidents
were related to plant safety.



Jim Craig




- ◆ 5.5 years with Process Machinery
- ◆ Elliott Stone / Vincennes University
- ◆ National Gypsum
- ◆ Tri-Angle Construction – B&LS Contracting – Black Beauty Coal – Shand Mining – Underground Coal Inc. – Delphi Limestone
- ◆ Indiana State / OSHA Internship
- ◆ Feed Mill
- ◆ Investigated many accidents.....



Clement M. Dovidas—1915-1996

- ◆ **US Bureau of Mines**
- ◆ **1966 M/NM Safety Act**
- ◆ **MESA**
- ◆ **MSHA at the Vincennes IN Training Center.**
- ◆ **Purpose of Act**



- ◆ **Conveyors**
 - ◆ **Bin / Hoppers / Surge piles**
 - ◆ **Crushers**
 - ◆ **Corrosion**
 - ◆ **Electrical / Welding**
 - ◆ **Pumps**
 - ◆ **Falls**
 - ◆ **Training**
- 
- A stylized, jagged mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Conveyors



**Conveyor belt systems
are the backbone of
material handling in
the mining industry.**



Primitive conveyor belts have been used since the 19th century



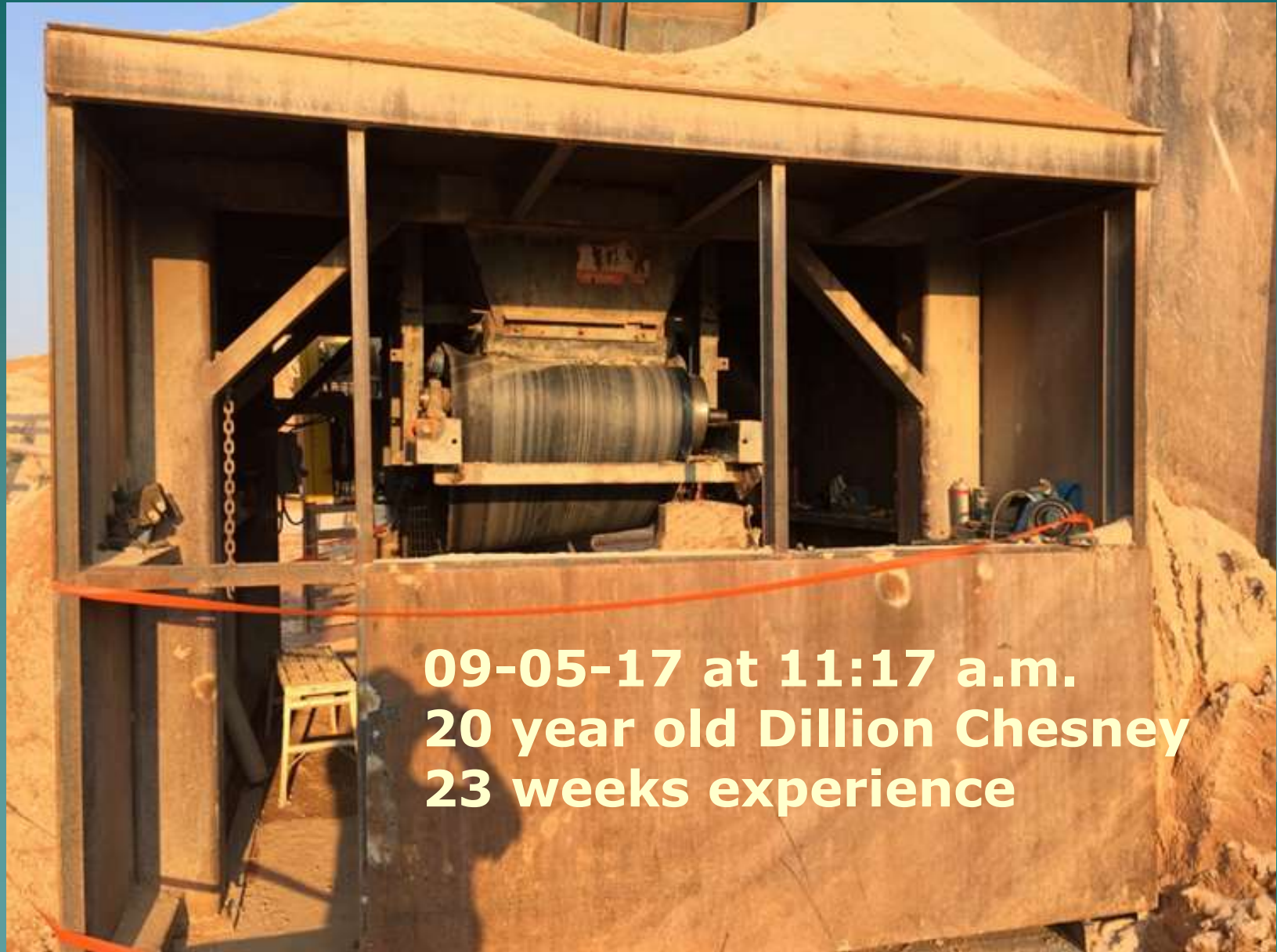
In 1905 Richard Sutcliffe invented the first underground conveyor belt system.



Conveyors are Simple




But you better **RESPECT** them!!



09-05-17 at 11:17 a.m.
20 year old Dillion Chesney
23 weeks experience

So how do we prevent conveyor accidents?

- ◆ **Know / follow the MSHA Regulations.**
 - ◆ **Follow Company Policy.**
 - ◆ **Training**
 - ◆ **Lock out / Tag out**
 - ◆ **Guarding**
- 
- A stylized, dark teal silhouette of a mountain range is positioned in the bottom right corner of the slide, extending from the right edge towards the center.

56/57.14105 PROCEDURES DURING REPAIR AND MAINTENANCE

Repairs or maintenance of machinery or equipment shall be performed only after the power is off, and the machinery or equipment is blocked against hazardous motion.



56.14109 Unguarded conveyors with adjacent travelways

- ◆ Unguarded conveyors next to the travelways shall be equipped with—
- ◆ (a) Emergency stop devices which are located so that a person falling on or against the conveyor can readily deactivate the conveyor drive motor;



56.14109 Unguarded conveyors with adjacent travelways



operation; and

56/57.14201 CONVEYOR START-UP WARNINGS

(a) When the entire length of a conveyor **is visible from the starting switch**, the conveyor operator shall visually check to make certain that all persons are in the clear before starting the conveyor.





56/57.14201 CONVEYOR START-UP WARNINGS

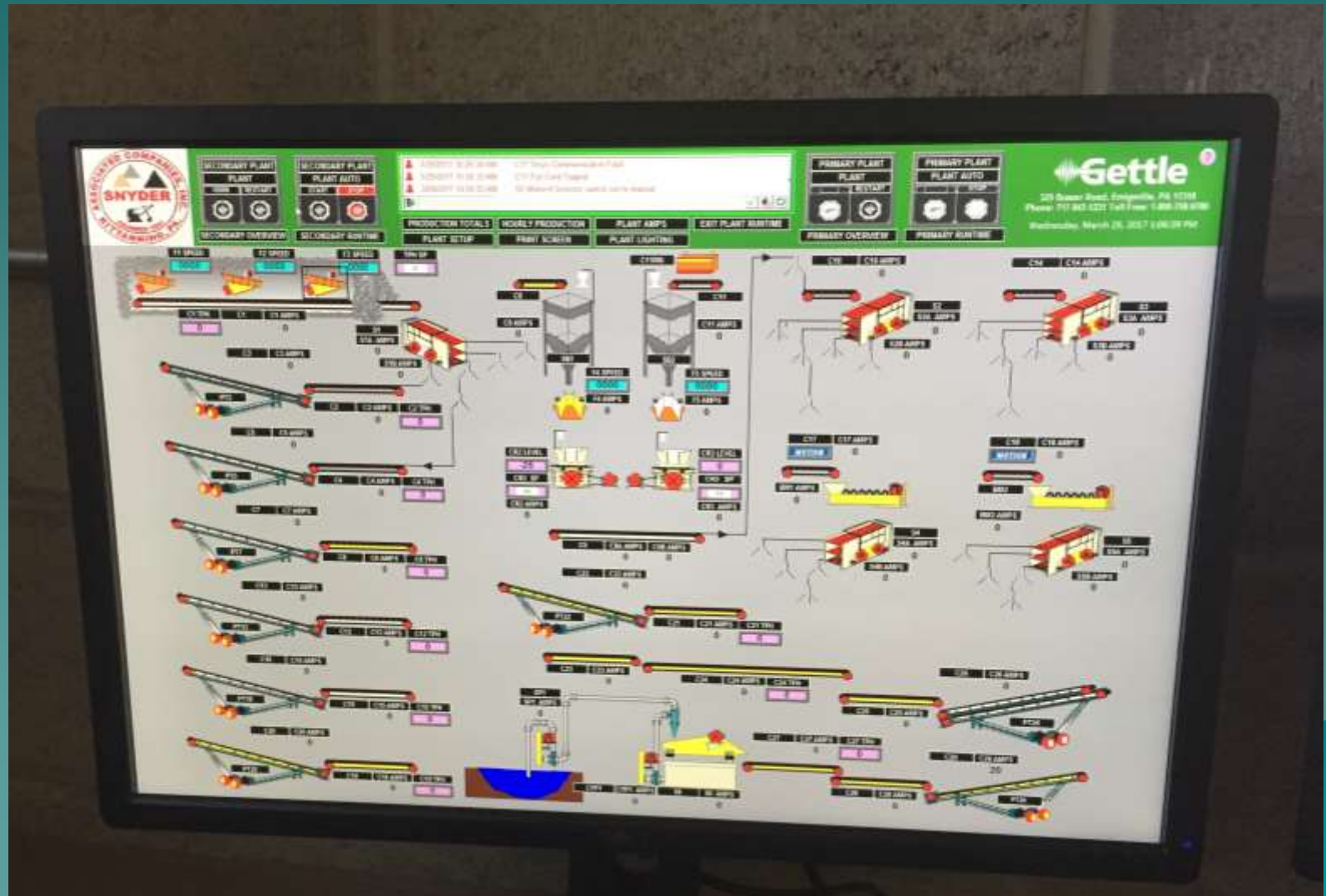
(b) When the entire length of the conveyor **is not visible from the starting switch**, a system which provides visible or audible warning shall be installed and operated to warn persons that the conveyor will be started.



Within
30 seconds
after the
warning is
given, the
conveyor shall
be started or a
second warning
shall be given



PLC System not programmed to comply!!!



56 / 57.14113 Backstops and Brakes



- ◆ Backstops or brakes shall be installed on drive units of inclined conveyors to prevent the conveyors from running in reverse.

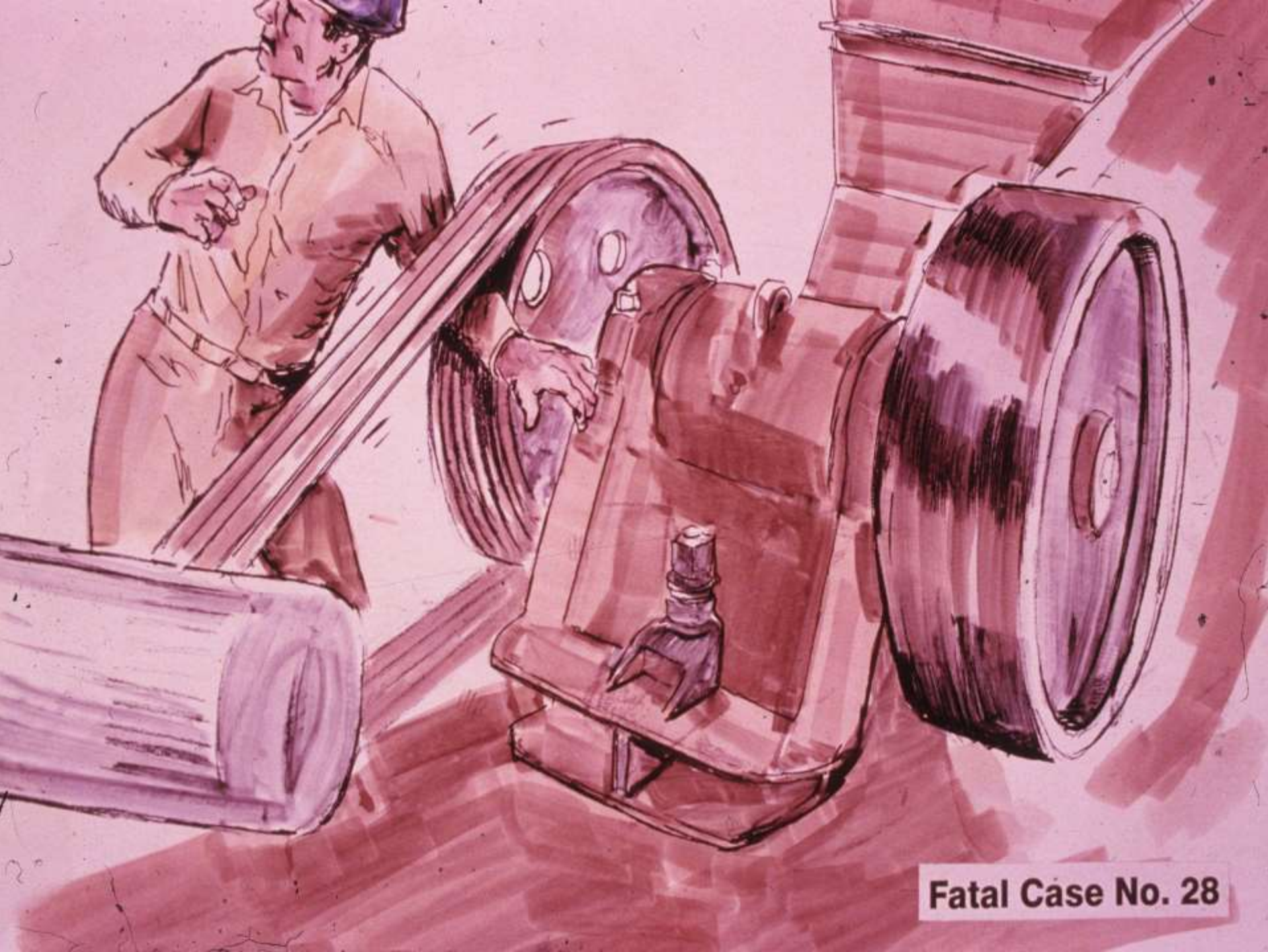
**Never get in
between the
belts and never
rely on the
backstop to
hold the belt.**



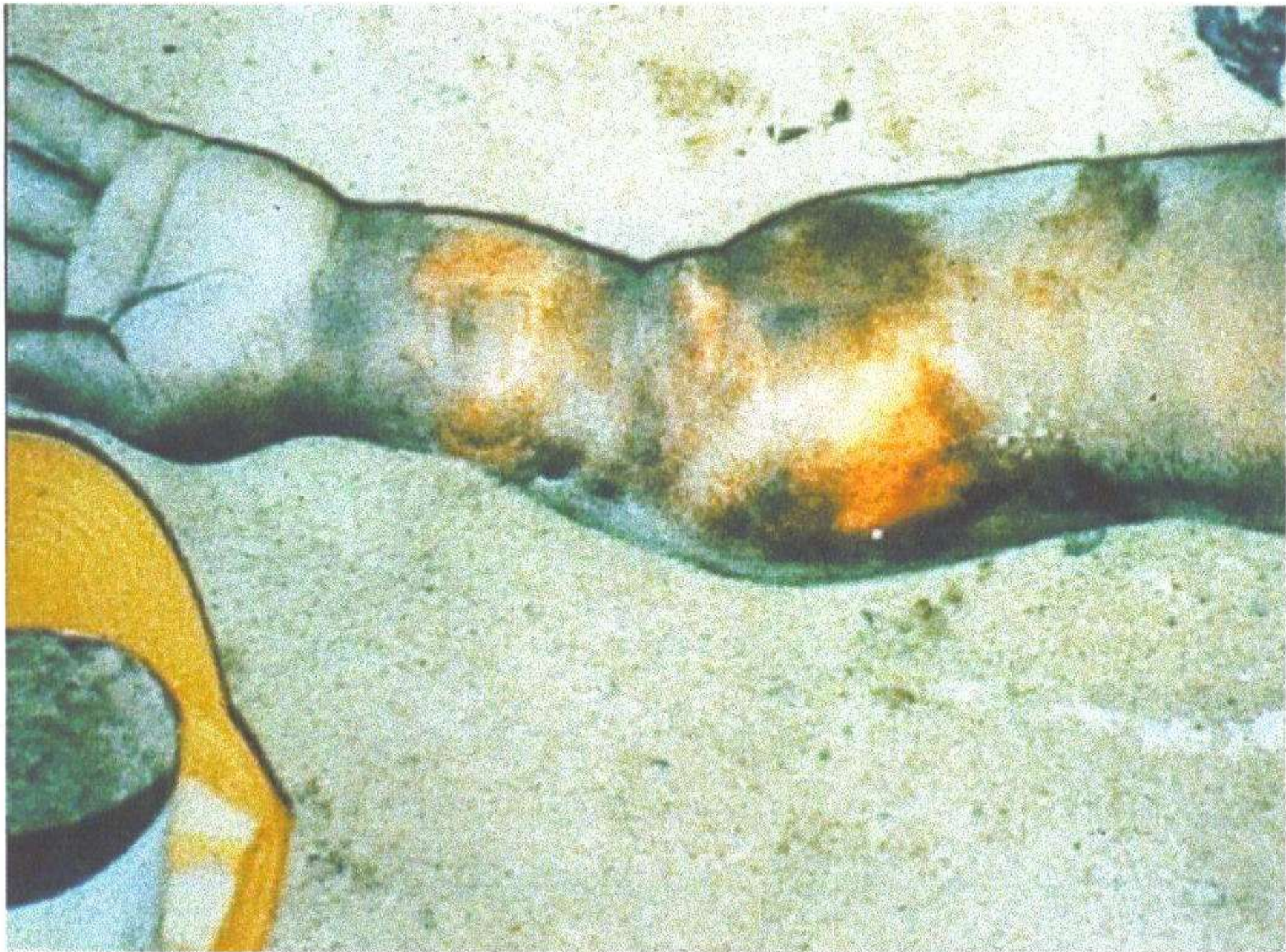
56/57.14107(a) MOVING MACHINE PARTS

Moving machine parts **shall be guarded to protect persons** from contacting gears, sprockets, chains, drive, head, tail, and takeup pulleys, flywheels, couplings, shafts, fan blades, and similar moving parts that can cause injury.

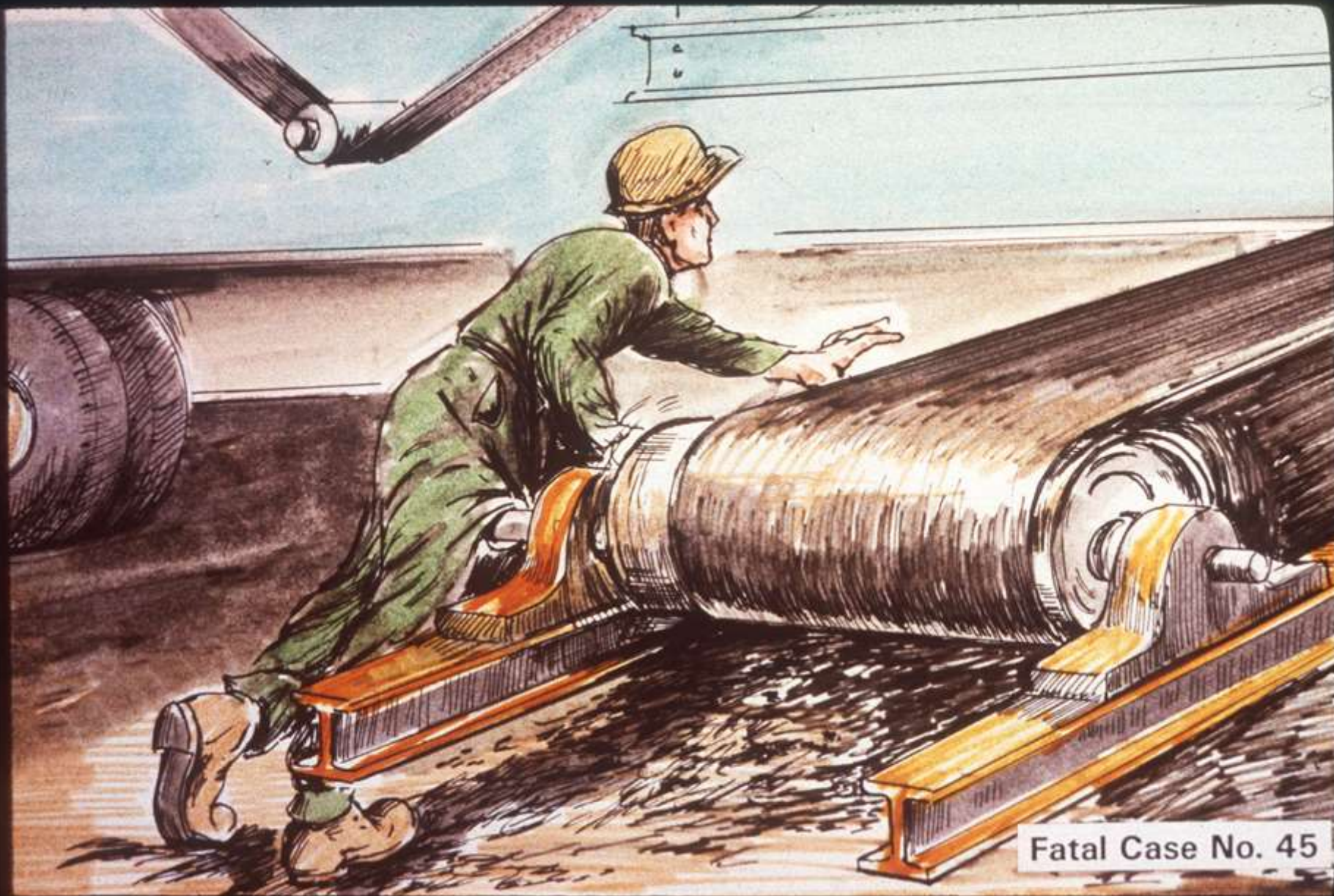




Fatal Case No. 28







Fatal Case No. 45



Fatal Case No. 26







56/57.12016 WORK ON ELECTRICALLY POWERED EQUIPMENT

- ◆ Electrically powered **equipment shall be de-energized** before mechanical work is done on such equipment
- ◆ Power switches shall be **locked out**
- ◆ Suitable **warning notices** shall be posted at the power switch
- ◆ Notices shall be **signed** by individuals who are to do the work
- ◆ Such locks shall be **removed** only by persons who installed them or by authorized personnel

! WARNING

Arc Flash and Shock Hazard
Appropriate PPE Required

Failure to comply with NFPA 70E requirements can result in serious injury or death.

PROPERTY OF:

Bob [illegible]

PROPIEDAD DE:

DANGER
DO NOT OPERATE

THIS LOCK/TAG
NAME: Keith Ritchie
DEPT.: Field Construction
EXPECTED COMPLETION: _____
ACCORDING TO THE RECORDS OF THE LOCKING DEPARTMENT

5635

DANGER

THIS ENERGY SOURCE
HAS BEEN LOCKED OUT!
UNAUTHORIZED REMOVAL OF
THIS LOCK TAG MAY RESULT
IN IMMEDIATE DISCHARGE.

REMARKS:


DO NOT OPERATE
MY LIFE IS ON THE LINE

THIS LOCK/TAG MAY ONLY BE REMOVED BY:
NAME: James Williamson 502-477-3008 or 502-321-5535
DEPT.: Field Construction
EXPECTED COMPLETION: _____
ACCORDING TO THE RECORDS OF THE LOCKING DEPARTMENT

ACCORDING TO THE RECORDS OF THE LOCKING DEPARTMENT





A photograph of an industrial accident scene. A yellow crane or conveyor system is visible on the left, and a large white cylindrical tank is on the right. A white arrow points from a text box to a specific location on the crane's structure. The background shows a brick building and a blue sky with clouds.

**Victim's Location at
Time of Accident**

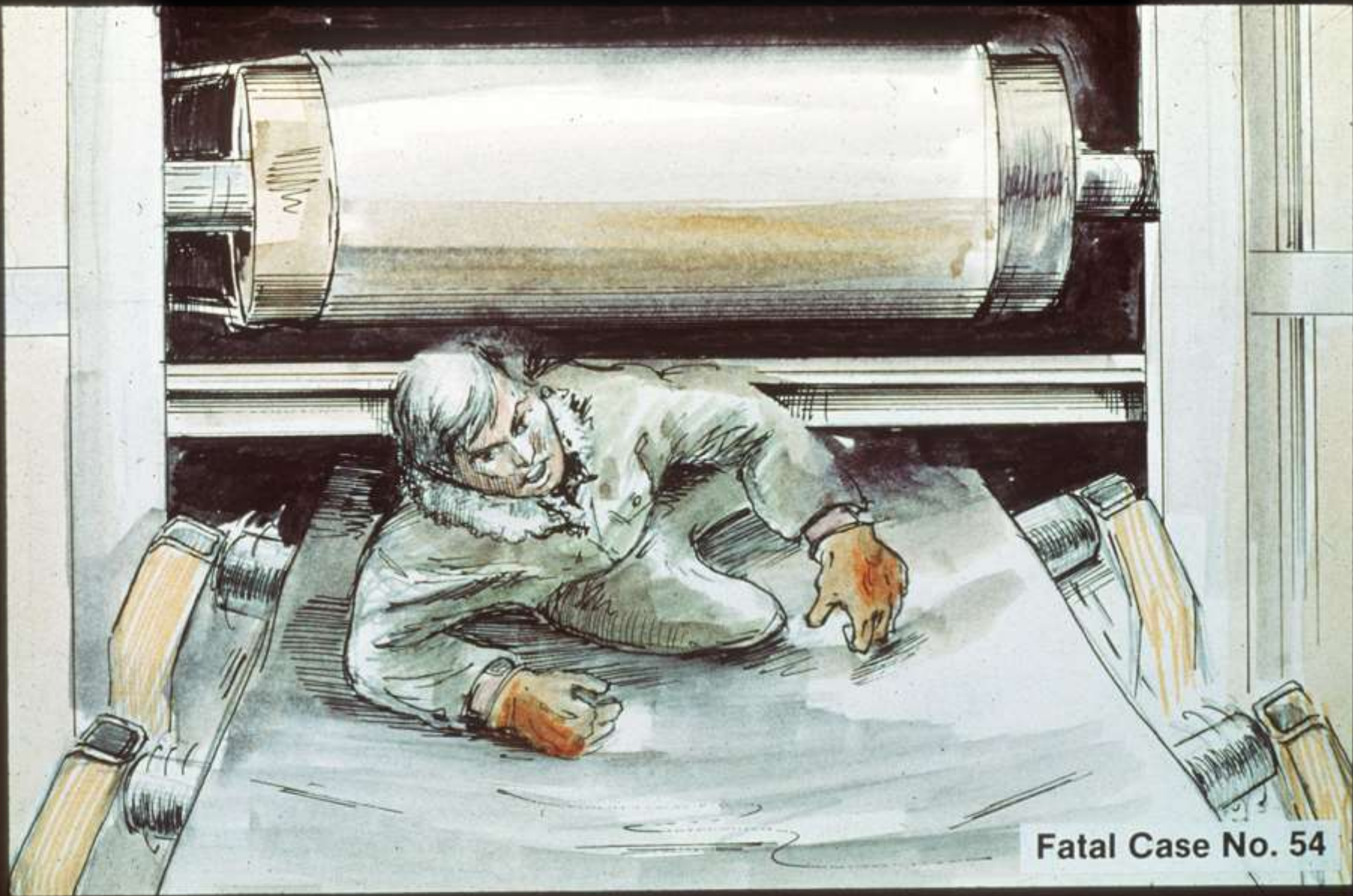




Location of return idler.







Fatal Case No. 54












56/57.14202 MANUAL CLEANING OF CONVEYOR PULLEYS

**Pulleys of conveyors shall not be
cleaned manually while the
conveyor is in motion.**



With a
d
o
l



A photograph of an industrial facility, possibly a port or refinery, featuring multiple levels of metal walkways, railings, and large pipes. A worker is visible inside a vertical chute. A yellow caution tape is stretched across the bottom of the frame. A white arrow points from the text to the worker in the chute.

**Victim working
in this chute**







12-15-17 Removed roller guard, stood on dozer blade trying to remove ice build up.







COUNTER
WEIGHT
BEAM (LIFT)

MAY 25 2006

“Common Sense”





Fatal Case No. 55



Fatal Case No. 8



A miner was in the basket working near a stacker conveyor belt when his right arm became entangled in the head pulley. Lost his right arm.



Repaired belt and was training it with the guard off, caught right arm.



Bins, Hoppers & Surge Piles





















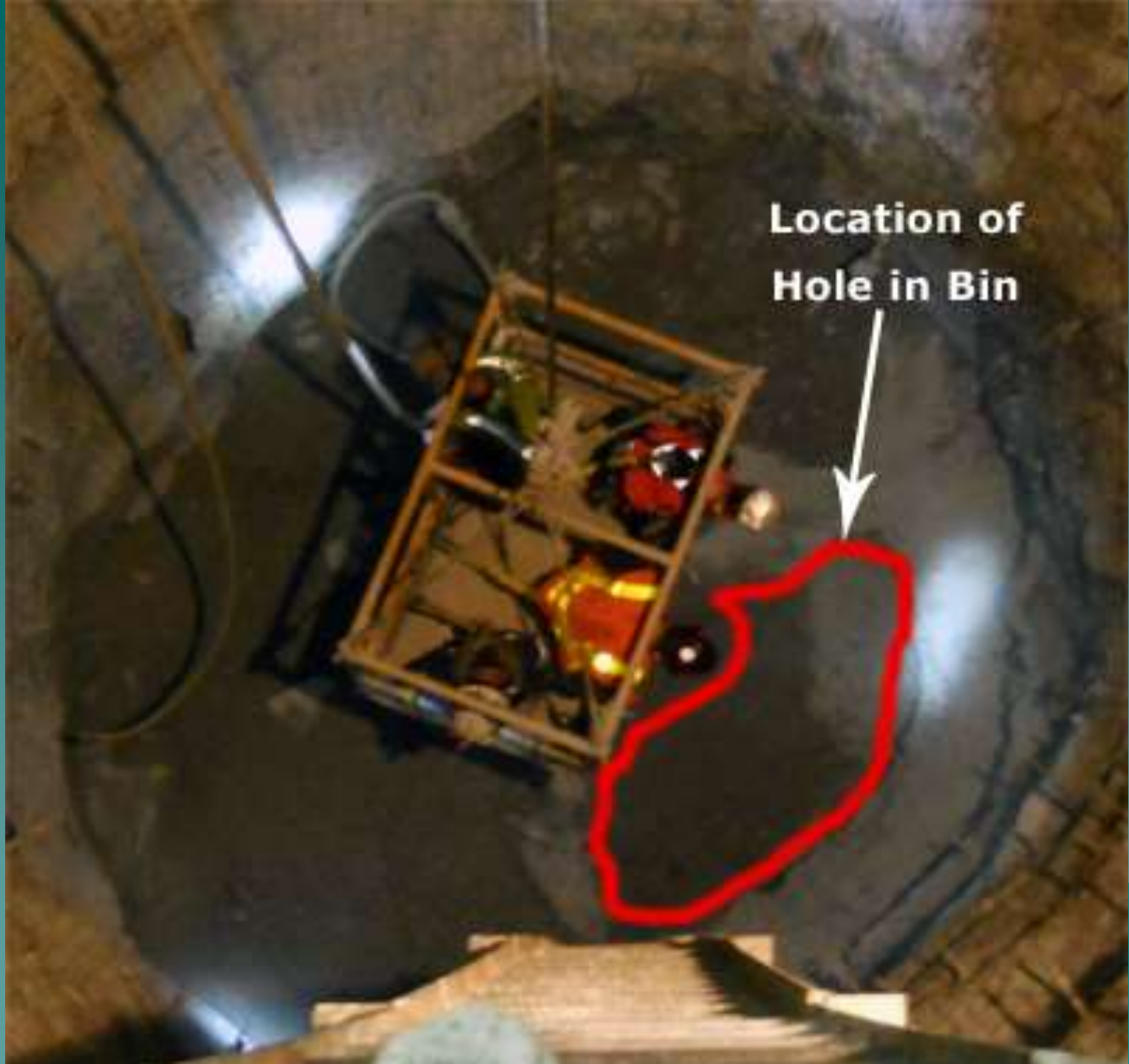








**Location of
Hole in Bin**



Crushers









Location of Drill Bit
(post-accident)

Victim was
standing on
rock while
using torch.

Location of Drill Bit
(prior to accident)

Control Tower





- ◆ 14 weeks experience
- ◆ 4 weeks on the portable crusher
- ◆ Did not receive Part 46 training or task training.
- ◆ Loader operator saw him on the viewing platform at 12:45 pm.
- ◆ He was found head first inside the operating jaw crusher.



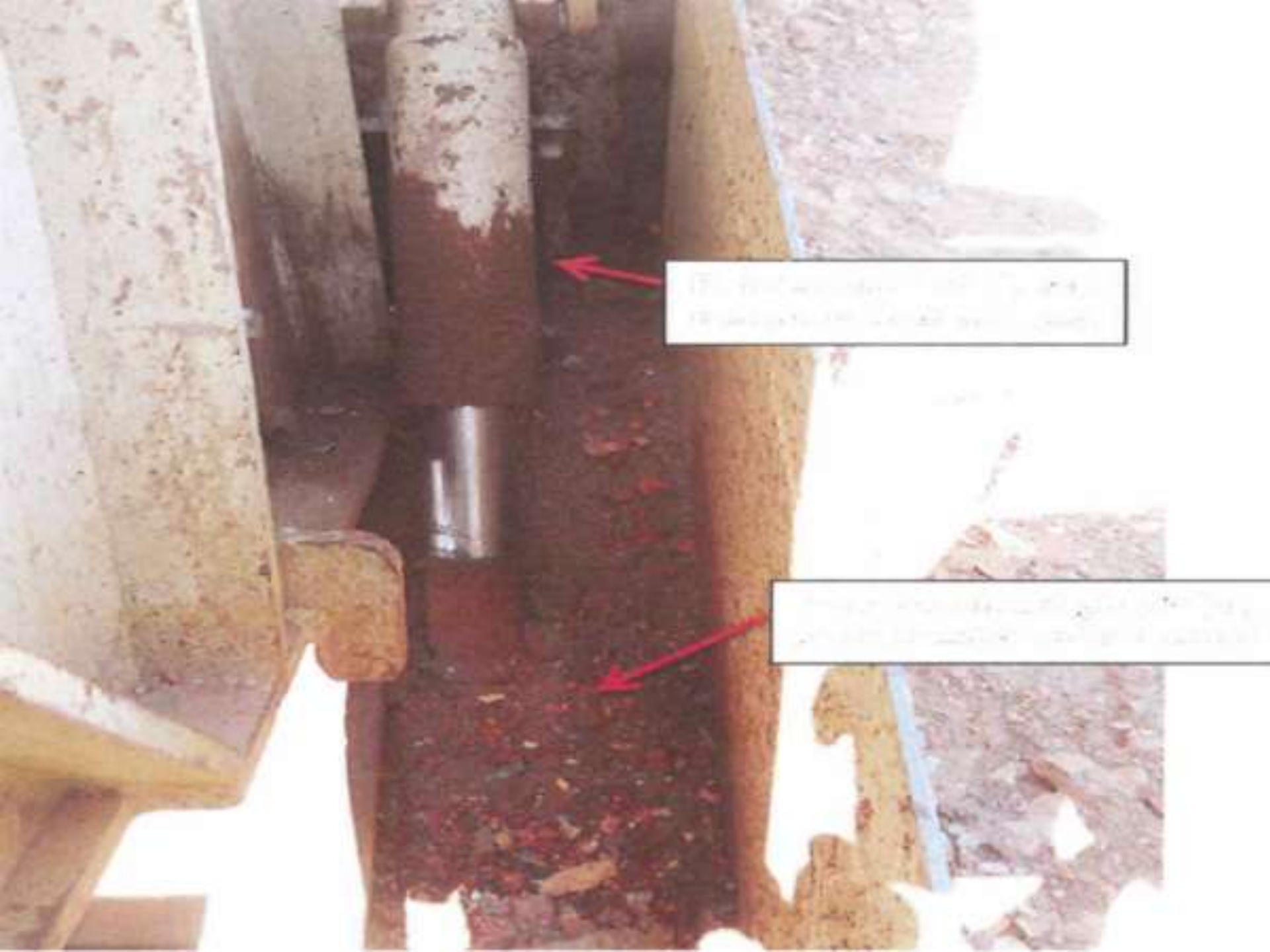


Fatal Case No. 36



Fatal Case No. 19





17. The first arrow points to a dark, reddish-brown stain on the left side of the slab, which is likely a result of water damage or a leak.

18. The second arrow points to a similar stain on the right side of the slab, which is also likely a result of water damage or a leak.







Corrosion

















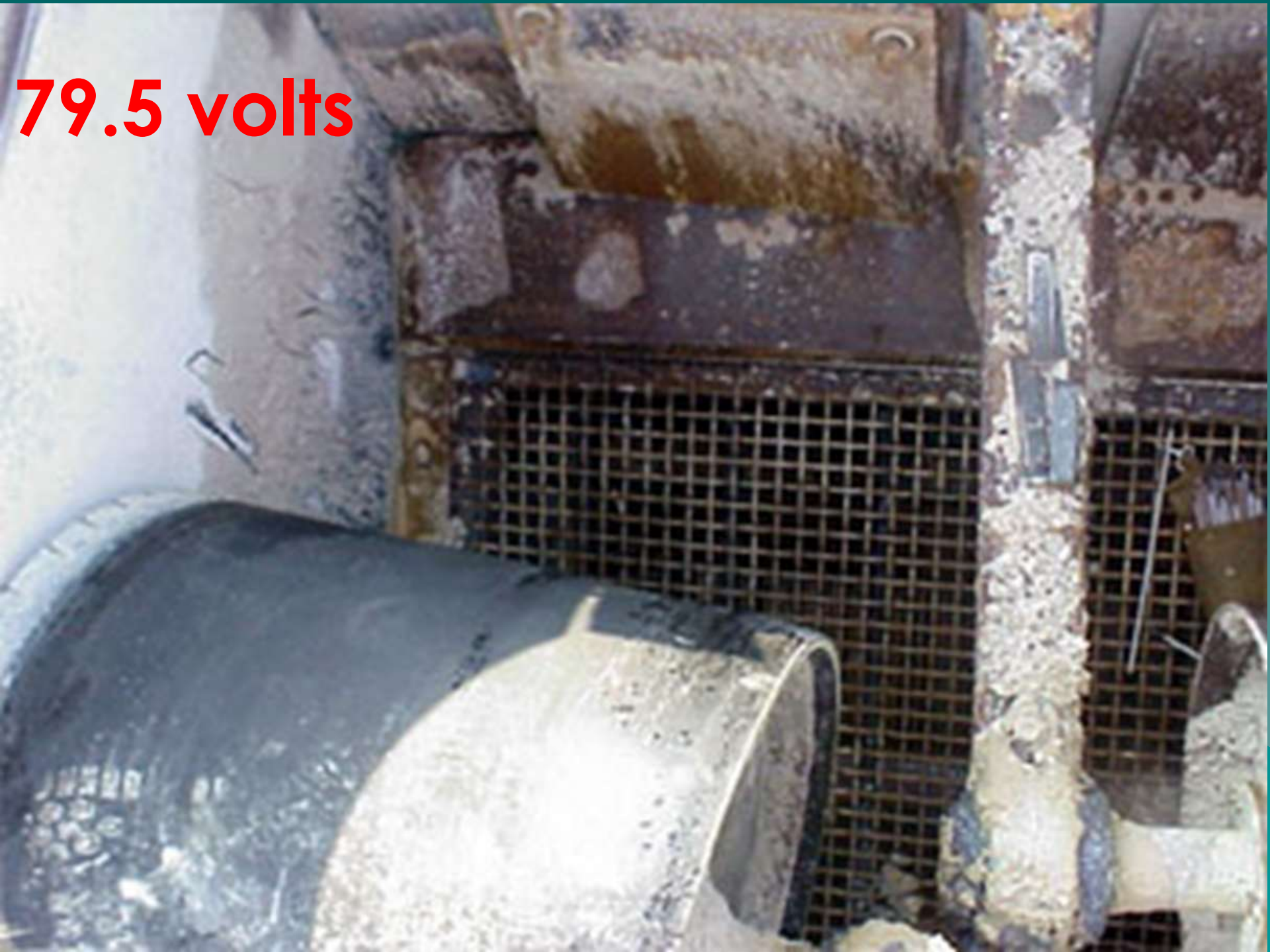




Electrical / Welding



79.5 volts

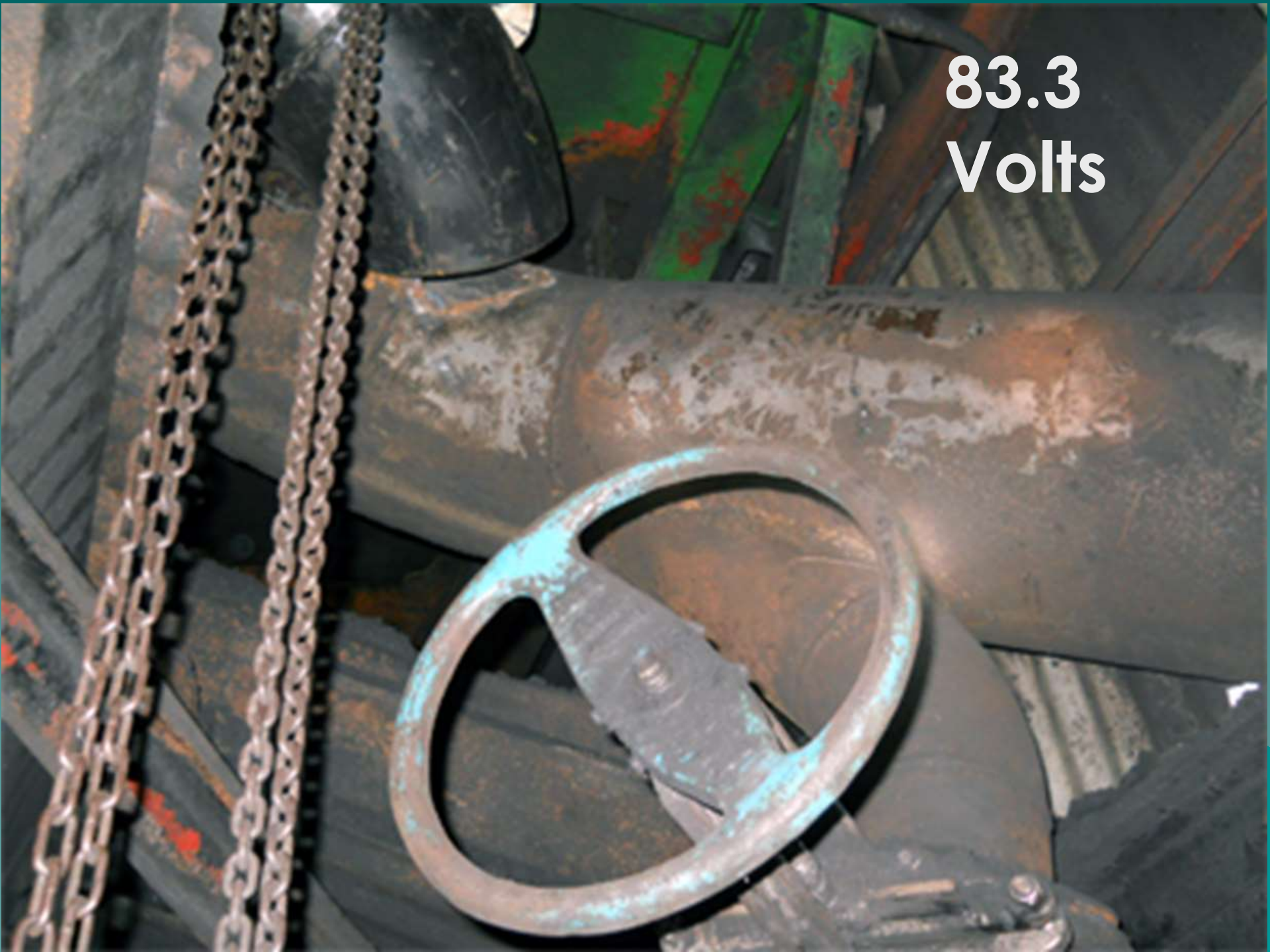


A welder wearing an orange protective suit and a dark welding mask is working on a metal plate. The welder is holding a welding torch and a metal rod, creating a bright spark at the point of contact. The background shows a construction site with a large tire and some machinery.

81 volts

No
PPE

83.3
Volts





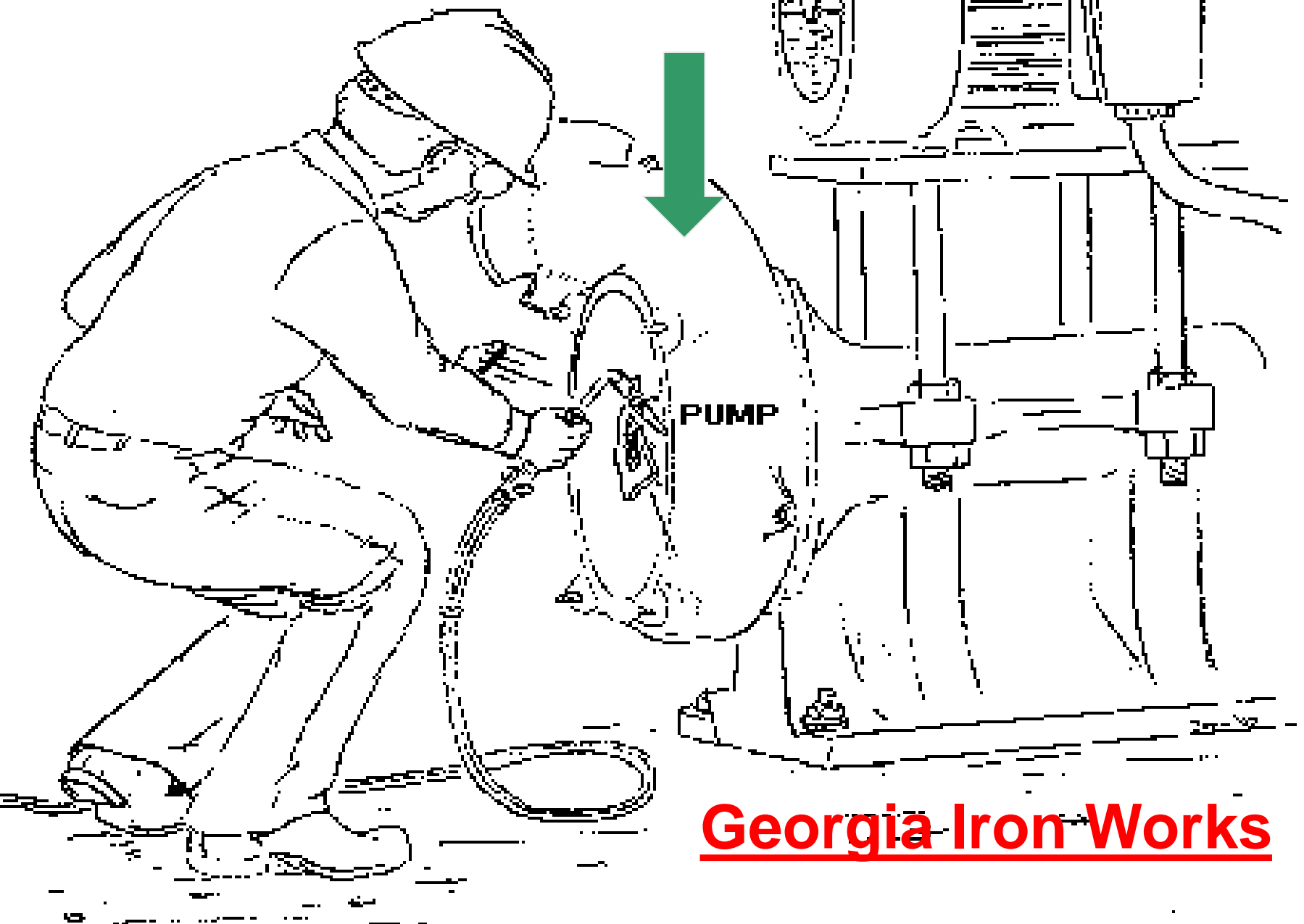




Pumps / Applying Heat




**Victim applying heat with rose
bud tipped acetylene torch**



Georgia Iron Works





PUMP WITH MISSING COVER PLATE
AND DAMAGED BODY

Fuel Gases and Oxygen

- ◆ Gauges and regulators used with oxygen or acetylene cylinders shall be kept clean and **free of oil and grease.**



Oxygen & oil explosion, Mariah Hill Mine, Spencer Co.



Oil and
Oxygen do
not mix!!!!!!



The oil
can and
wrenches on
top of
gasoline
tank.



Remains of the regulator



Fall Hazards

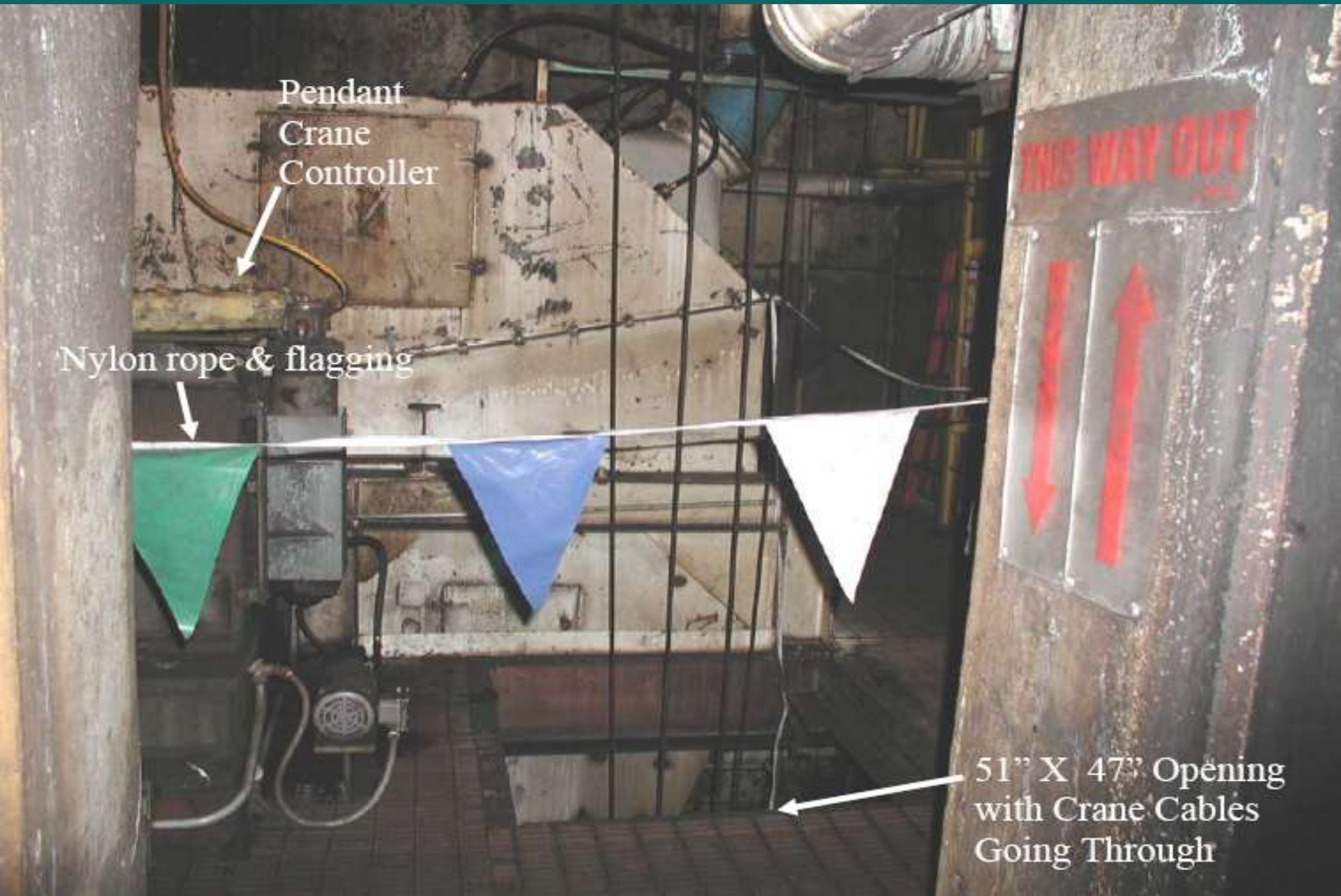




**DO
NOT
ENTER**







Pendant
Crane
Controller

Nylon rope & flagging

51" X 47" Opening
with Crane Cables
Going Through

THIS WAY OUT





09-28-2012









**Opening Victim
Fell Through**







Work area



DANGER

FALL PROTECTION
REQUIRED WHEN
RAILING IS REMOVED









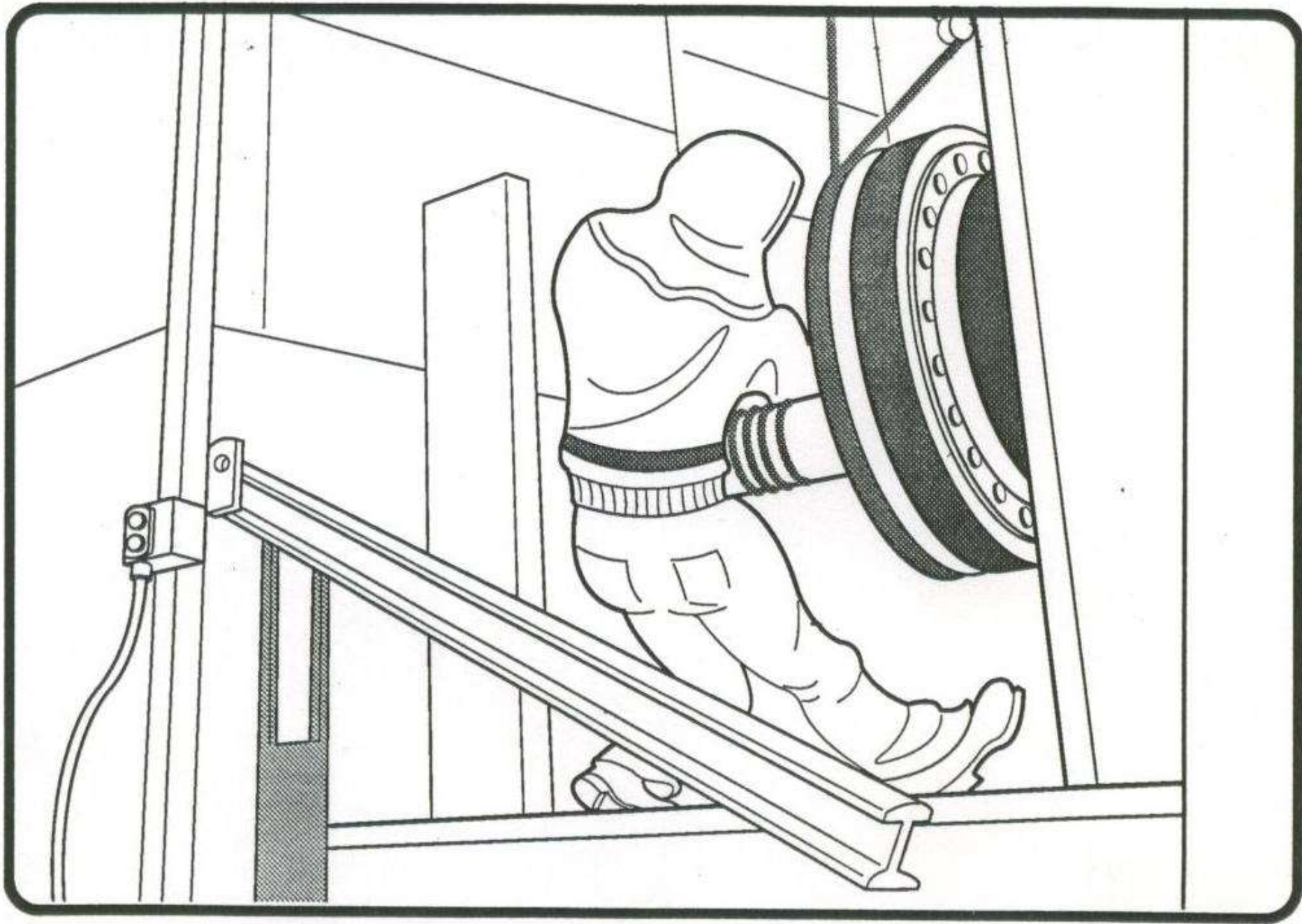
**Victim was
standing here.**



Victim fell from this area

Watch your lifeline!!!!







08.20.2019

Area of Contact





05.19.2019

Murphy's Law


- ◆ Project Manager said that their good safety record on the project was due to a firm belief in Murphy's Law

Captain Edward
A. Murphy







A photograph showing a close-up of a metal structure, possibly a bridge or industrial equipment. The structure consists of several vertical metal plates or beams connected by horizontal bolts. A white rectangular text box with a black border is overlaid on the left side of the image. A red arrow points from the bottom right corner of this text box to a narrow gap between two vertical metal plates. The background shows a curved metal structure and some distant lights.

Victim caught
here













OCT 17 2004

Training

- ◆ What are the 5 types of training required by Part 46 / 48?
- ◆ Which type of training is the most important?



Safety Answer Book



KELLER'S
**OSHA SAFETY
TRAINING NEWSLETTER**



ANSI • NFPA • ACGIH • NIOSH

Safety Answer Book

- ◆ **The 1977 Mine Safety and Health Act declares that an untrained miner a hazard to himself and others.**

- In 1989 William Tattersall made the prediction that we would reach our goal of **ZERO fatal accidents** in the mining industry by the year 2000 utilizing a new tool....



**The Job
Safety
Analysis.**

TASK – DRILLING

PPE requirements are the same

Date: April 18, 2011

BASIC JOB STEPS

- 1.) Raise the canopy to a comfortable working height using the hydraulic lever.
- 2.) Make sure both drill guides are closed around the drill steel and the drill steel is retained in the drillhead. Use the crowd to raise the bit close to the roof, sting the mast into the roof. Keep dust collector operating during drilling.
- 3.) Set the THRUST control to HOLE COLLAR and begin drilling using the ROTATION and FEED handles at the same time to drill the hole. These controls are friction locked.

POTENTIAL HAZARDS

- 1.) Bolter may become unstable.
- 2.) Drill steel may jump out of guide. Hand and arm injuries.
- 3.) **Massive trauma to hands and arms which could result in amputation or even death.**

SAFE JOB PROCEDURE

- 1.) Maneuver the boom into position for drilling. **NEVER** pressurize the canopy against the roof.
- 2.) Inspect drill guides. Use smooth handle controls. **When one hand is on the drill steel, wrench, or bolt, remove your other hand from the controls** to prevent inadvertent activation of the control functions. **Do not wear gloves.**
- 3.) Use **"hands off" drilling methods.** After the hole is collared move the THRUST control to **MID RANGE or FULL THRUST.** After hole is started open drill guide to reduce noise.

MANDATORY
Mobile Equipment

57.9100 Traffic
mobile equipment
movement, and
established and
hazardous con

57.9101 Oper
propelled mobi
motion. Operat
grades, clearan

57.9200 Trans
dippers, forks, and
operations or d
mobile equipment
and (2) Means
provided with u
Outside cabs, e
except when ne
provisions are n
equipment. (e)
leading end of a
to hazards from
droppers if they
falling off the w



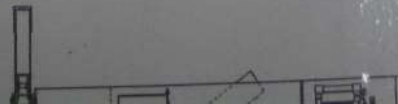
FLETCHER
OPERATOR'S MANUAL

MODEL: HDR-D

SERIAL NUMBER: 2002030



J. H. FLETCHER & CO.
P.O. BOX 2187
HUNTINGTON, WV 25722
www.jhfletcher.com
PHONE: (304) 525-7811
FAX: (304) 525-3770



MSDS Sheets for HAZ COM training

1) J-L OK resin glue



MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Manufacturer/Distributor: J-Lok Co.
626 Gallitzin Rd.
P.O. Box 187
Cresson, PA 16630
Telephone: 814-886-7590
Fax: 814-886-7695

Product Name: J-LOK (Is a trademark of J-LOK Co.)

Resin Glue

Product Use: Underground mine roof bolting

Phone Numbers

Technical Information:

Emergency Contact:

814-886-7590

For chemical emergency spill, leak, fire, exposure or accident call
CHEMTREC day or night: Domestic North America, call 800-424-9300
International, call 703-527-3887 (collect calls accepted)
Medical Emergency (Poison Control Center): 800-222-1222

MSDS Preparation Information: Revision Date: October 29, 2007
Previous Revision: December 8, 2006

MSDS Preparer: Jenmar Corporate Safety Department, 412-963-9071

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL COMPOSITION:	CAS Number	% Range
Calcium Carbonate (Limestone)	1317-65-3	75-85
Polyester Resin	—	9-15
Benzoyl Peroxide	94-36-0	2 - 2.5
Water	7732-18-5	3-6
*Styrene Monomer	100-42-5	4-6
Polyester Ether	—	<1



U.S. Department of Labor
Mine Safety and Health Administration

Fatalgrams and Fatal Reports

"Safety and Health are Values"

Fatality #2 - January 25, 2007
Fall of Roof or Back - Washington - Lead/Zinc Ore
Tech Cominco American Inc - Pend Oreille Mine

METAL/NONMETAL MINE FATALITY - On January 25, 2007, a 43 year-old bolter, with 7 years mining experience, was fatally injured at an underground lead/zinc mine. The victim and a co-worker were using a roof bolter to install ground support when a 3' x 4' x 1' piece of rock fell and struck him.



Best Practices

- Examine and test ground conditions prior to performing work.
- Take down or support ground that creates a hazard to persons before performing other work or travel in the affected area.
- Train miners in safe work procedures and hazard recognition, specifically when bolting.
- Stop, Look, Analyze, and Manage, SLAM each task to identify all potential hazards. Ensure that all hazards are eliminated so the task can be safely performed.

This is the 2nd fatality reported in calendar year 2007 in the metal and nonmetal mining industries. As of this date in 2006, there was one fatality reported in these industries. This is the 1st Fall of Roof or Back fatality in 2007. There were no Fall of Roof or Back fatalities in the same period in 2006.

HYDRAULIC SPLITTERS

CONCRETE AND ROCK



1000
1000
1000
1000



BOSCH



1000
1000
1000
1000



Hartzell

INSTALLATION, OPERATION
& MAINTENANCE
MANUAL



Quick Reference Guide

Wheel Charger

- Français
- Español

READ AND FOLLOW ALL MANUFACTURER'S INSTRUCTIONS BEFORE USING

CAUTION: THE CHARGER MUST BE FULLY ASSEMBLED AND PROPERLY GROUNDED BEFORE USE. SEE SECTION 13 FOR INSTRUCTIONS.

To charge the battery:

1. Determine the state of charge of the battery using a voltmeter. Refer to the manufacturer's instructions for proper use.
2. Connect the battery's positive terminal to the charger's positive terminal and the negative terminal to the charger's negative terminal.
3. Turn on the charger and allow the battery to charge for the recommended time.

CHARGING TIME CHART

Battery Voltage	12V				24V				36V				48V			
	100%	75%	50%	25%	100%	75%	50%	25%	100%	75%	50%	25%	100%	75%	50%	25%
12V	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
24V	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
36V	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
48V	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



metabo

CS 14-15



1. Instructions for use page 6
2. Maintenance page 11
3. Instructions de service page 18
4. Instructions de service page 25

NITRO

Air Compressor Owner's Manual

5 HP (Peak) Electric
82-4253-PAT
82-4253-PAT
82-4253-PAT

7 HP (Peak) Electric
82-4278-VAT
82-4278-VAT



08/27/2006

46.7 New Task Training Record

NOBERM CONSTRUCTION

Print Full Name Bobby Boucher

The miner received the following training before performing a new task, or a change occurred in an assigned task that affects safety and health risk:

New Task	Date	Competent Person	Training Location	Miners Initials
Ingersoll Hand Drill	1-15-10	Roy Nikirk	Mine Site	B.B
Slips & Wedges	4-20-10	Roy Nikirk	Mine Site	B.B
JLG Man/lift	11-12-10	Gene Abbott	Training Center	B.B
L-90 Loaden	2-14-11	Robbie Dorsett	Mine Site	B.B
Track Crew	5-11-11	Roy Nikirk	Mine Site	B.B
Crusher	9-30-11	Robbie Dorsett	Mine Site	B.B
Fall Protection	3-26-12	Craig James	Office	B.B

False certification is punishable under Section 110 (a) of the Federal Mine Safety and Health Act.

Signed _____ Date _____

I certify that the above training has been completed (Signature of person responsible for health and safety training)

Certificate of Training

U.S. Department of Labor
Mine Safety and Health Administration



Approved OMB Number 1219-0009, Expires July 31, 2014.

This certificate is required under Public Law 91-173 as amended by Public Law 95-164. Failure to comply may result in penalties and other sanctions as provided by sections 108 and 110, Public Law 91-173 as amended by Public Law 95-164.

Issue Certificate Immediately
Upon Completion of Training

Serial Number (for operator's use)

1. Print Full Name of Person Trained (first, middle, last)
William Clinton

2. Check Type of Approved Training Received:

☐ Annual
Refresher

☐ Experienced Miner

☐ Hazard Training

☒ New Task
(specify below)

☐ Newly Employed
Inexperienced Miner

☐ Other (specify)

Date	Task	Initials	Date	Task	Initials
03-26-12	HD-RD Bolter	GB WC			Instr Student
04-19-12	Cat 775 truck	GB WC			
05-22-12	L330 Loader	GB WC			
06-30-12	WA-800 Loader	GB WC			

3. Check Type of Operation and Related Industry:

A. ☒ Surface

☐ Construction

☒ Underground

☐ Shaft & Slope

B. ☐ Coal

☐ Metal

☒ Nonmetal

4. Date Training Requirements Completed

☐ Check if not completed
and go to item 5, below.

→ If completed, go to item 5, below.

5. Check Subjects Completed (Use only for partially completed training):

☐ Introduction to Work Environment

☐ Roof/Ground Control
& Ventilation

☐ Health

☐ Hazard Recognition

☐ Mine Map, Escapeways,
Emergency Evacuation,
Barricading

☐ Electrical Hazards

☐ Emergency Medical Procedures

☐ Cleanup, Rock Dusting

☐ First Aid

☐ H&S Aspects of Tasks Assigned

☐ Mandatory Health &
Safety Standards

☐ Mine Gases

☐ Statutory Rights of Miners

☐ Authority & Responsibility
of Supervisors & Miners
Representatives

☐ Explosives

☐ Self-Rescue & Respiratory Devices

☐ Prevention of Accidents

☐ Transport & Communications Systems

☐ Other (specify)

6. False certification is punishable under
section 110 (a) and (f) of the Federal Mine
Safety & Health Act (P. L. 91-173 as
amended by P. L. 95-164).

I certify that the above training has been completed
(signature of person responsible for training)

George Washington

7. Mine Name, ID, & Location of Training (if institution, give name & address)

Noberm Mine
12-02943
Noberm Mining Company

8. Date

07-12-2012

I verify that I have completed the above training
(signature of person trained)

OB STEPS

triggers.

safety
grinders.

POTENTIAL HAZARDS

5.) Increases injury potential if kickback occurs or if the grinder is accidentally dropped.

6.) Grinders have a tremendous potential for injury or death if proper work procedures are not followed at all times. Grinders will bind, kick back, entangle and throw fragments. The most common injuries are lacerations to the fingers and eye injuries.

Respect the grinder!

Employee _____

Date _____

Trainer _____

SAFE JOB PROCEDURE

5.) Federal law prohibits the use of locking triggers at quarries and mines. Remove the locking triggers or remove the grinders from the job site.

6. a) Metabo recommends that you start the grinder and run it for 60 seconds with no load. During this time period is when disc or wheels usually break apart.

6. b) Keep both hands on the grinder as it winds down to a complete stop. A grinder can cut right through a leather glove, electrical cord, welding lead or conduit.

6. c) When making adjustment to the disc, guard or handle, disconnect the cord. Never carry a grinder by the cord.

6. d) Do not use a wheel or disc that had been soaked in water, oil, grease or a solvent. Destroy defective disc by breaking them so they can't be used and throw in the trash. Never use a cutting disc for grinding work. (NOTE: some disc are for both).

6. e) Remove any defective grinder from service and tag is out or make it inoperable.

6. f) Respiratory protection may be required to protect your lungs from dust generated by grinding operations. Wear an N95 as a minimum level of protection.




JSAs advantages

- ◆ Simple Format
- ◆ Miner participation
- ◆ Easily updated (update after near miss, accident, fatal investigation report.
- ◆ Used to monitor safety performance / evaluations.
- ◆ It is a checklist so you don't miss anything



Benjamin Franklin

- ◆ **Tell me and I will forget.**
 - ◆ **Teach me and I will remember.**
 - ◆ **Involve me and I will learn.**
- 
- A stylized, jagged mountain range silhouette in a darker teal color, located in the bottom right corner of the slide.

Disclaimer!!!!!!!

- ◆ This information is based on personal experience, is for information only and does not constitute legal advice or a guarantee that you will not be cited by MSHA!!!
- ◆ Although every reasonable effort is made to present current and accurate information, I make no guarantees of any kind.

QUESTIONS?

◆ Thank you!