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**BURNS EDITON** OF **CREW WATCH** JUNE 2020

**BURNS** HOW THEY HAPPEN

**LATEST BSAFE** POSTER

**FIRST AID** SIMPLE ACTIONS

**CASE STUDIES** LESSONS LEARNED

**BURNS** BEST PRACTICES

BRITANNIA P&I
TRUSTED SINCE 1855


## THE LOSS PREVENTION TEAM HERE AT BRITANNIA IS ALWAYS LOOKING OUT FOR TRENDS OR PATTERNS IN THE TYPES OF CLAIMS THAT THEY SEE.

**RECENTLY THERE HAVE BEEN A NUMBER OF CASES WHERE OUR MEMBERS' CREW HAVE SUFFERED BURN INJURIES, WITH SOME OF THE INCIDENTS LEADING TO THE TRAGIC DEATH OF THE SEAFARERS. THIS PROMPTED US TO EXAMINE OUR DATA FROM THE LAST FEW YEARS TO SEE HOW THESE ACCIDENTS HAPPENED AND WHAT THE RESULTING INJURIES WERE.**

We looked at the lessons to be learned and the messages that we could share with all our Members and their crews to try and prevent similar accidents in the future.

Another new initiative launched recently is a series of 33 'bitesize' videos that are now available on the Britannia website. The videos are designed for routine training purposes, but can also serve as a helpful refresher or guidance for onboard medical officers.

Although created before the current pandemic crisis, the videos are divided into broad headings such as infections/use of antibiotics, fracture management/joint pain, abdominal pain, skin conditions/burns/allergies and use of diagnostic equipment. Further details about the videos are on our website and in the Bulletin recently sent out to Members:

https://britanniapandi.com/wp-content/uploads/2020/03/Bulletin-Onboard-Medical-Guidance-Videos.pdf

## COVID-19

**IN THE LAST FEW MONTHS THE LIVES OF SO MANY SEAFARERS HAVE BEEN AFFECTED IN ONE WAY OR ANOTHER BY THE COVID-19 PANDEMIC.**

We are very conscious of the crucial role that they play in maintaining the global supply chain in what can be very difficult circumstances.

The material for this publication was prepared while the covid-19 pandemic was developing, and does not expressly mention it, but the advice contained in it is equally valuable in the present climate where obtaining permission to disembark for medical attention is not always straightforward.

As always, we hope that you enjoy this edition of Crew Watch and if you have any comments pease let us know by contacting our publications team at publications@tindallriley.com

# BURNS

**WE CONTINUE TO SEE CASES INVOLVING BURN INJURIES, SOME OF WHICH RESULT IN SERIOUS CONSEQUENCES. WE HAVE THEREFORE DECIDED TO MAKE BURNS THE FOCUS OF THIS SPECIAL EDITION OF CREW WATCH.**

AS MANY OF US HAVE NO DOUBT EXPERIENCED AT SOME POINT IN OUR LIVES, **BURNS ARE A PARTICULARLY PAINFUL FORM OF INJURY RESULTING IN DAMAGE TO OUR SKIN.** FORTUNATELY IN MOST CASES, THE CONSEQUENCES OF BEING BURNT ARE FAIRLY MINOR AND THE INJURIES HEAL RELATIVELY QUICKLY AND WITH NO LASTING IMPACT. **HOWEVER...**

**A BURN**
IS AN INJURY CAUSED BY EXPOSURE TO HOT, COLD, CHEMICAL OR RADIATION ENERGY.

**A SCALD**
IS A BURN CAUSED BY CONTACT WITH HOT LIQUID OR STEAM.

...burns and scalds also have the ability to do much more severe damage to the human body, with the potential to cause excruciating pain, life-changing injuries and even death.

As we sadly see from the claims reported to Britannia, the many hazards on board ships offer a variety of opportunities for seafarers to sustain extremely serious burns. In this edition of Crew Watch we therefore take a look at the topic of burns, by firstly learning a bit more about how burns actually occur, and then by taking a look at our claims over the past few years. Not only have we reviewed our statistics to determine what the data tells us in way of trends, but we have also then provided some short examples of burns case studies with lessons learned.

Prevention is always reported to be better than the cure, but we also touch on both areas in this edition. We have included details of some simple First Aid actions that can be taken in the event of a burns injury. However, most importantly, we conclude this edition with some sound best practice guidance to help prevent a burns injury occurring in the first place.

BURNS AND SCALDS ARE BOTH DAMAGE TO THE SKIN USUALLY CAUSED BY HEAT. BOTH ARE TREATED IN THE SAME WAY.

# YOUR SKIN HAS 3 LAYERS

**THE EPIDERMIS**
THE OUTER LAYER OF SKIN

**THE DERMIS**
THE LAYER OF TISSUE JUST BENEATH, WHICH CONTAINS BLOOD CAPILLARIES, NERVE ENDINGS, SWEAT GLANDS AND HAIR FOLLICLES

**THE SUBCUTANEOUS FAT, OR SUBCUTIS**
THE DEEPER LAYER OF FAT AND TISSUE

# THERE ARE 4 MAIN TYPES OF BURN

BURNS ARE ASSESSED BY HOW SERIOUSLY YOUR SKIN IS DAMAGED AND WHICH LAYERS OF SKIN ARE AFFECTED. EACH TEND TO HAVE A DIFFERENT APPEARANCE AND DIFFERENT SYMPTOMS.

## 1st

**SUPERFICIAL EPIDERMAL BURN** (first degree) – where the epidermis is damaged; your skin will be red, slightly swollen and painful, but not blistered

## 2nd

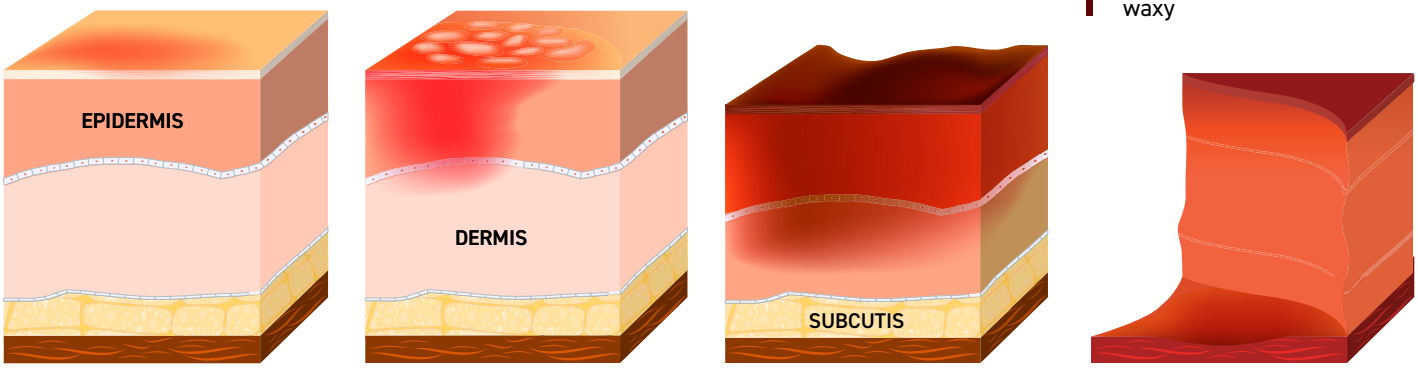
**SUPERFICIAL DERMAL BURN** (second degree) – where the epidermis and part of the dermis are damaged; your skin will be pale pink and painful, and there may be small blisters

## 3rd

**DEEP DERMAL OR PARTIAL THICKNESS BURN** (third degree) – where the epidermis and the dermis are damaged; this type of burn makes your skin turn red and blotchy; your skin may be dry or moist and become swollen and blistered, and it may be very painful or painless

## 4th

**FULL THICKNESS BURN** (fourth degree) – where all 3 layers of skin (the epidermis, dermis and subcutis) are damaged; the skin is often burnt away and the tissue underneath may appear pale or blackened, while the remaining skin will be dry and white, brown or black with no blisters, and the texture of the skin may also be leathery or waxy




**BURNS CAN BE VERY PAINFUL AND MAY CAUSE:**
**RED OR PEELING SKIN | BLISTERS | SWELLING | WHITE OR CHARRED SKIN**

**THE AMOUNT OF PAIN YOU FEEL ISN'T ALWAYS RELATED TO HOW SERIOUS THE BURN IS.**
**EVEN A VERY SERIOUS BURN CAN SOMETIMES BE RELATIVELY PAINLESS.**

# FIRST AID

## SOME SIMPLE ACTION YOU CAN TAKE

**THE TREATMENT OF BURNS SHOULD BE DONE WITH CAUTION AND ALWAYS WITH CONSIDERATION TO YOUR OWN SAFETY WHEN ASSISTING OTHERS.**

**FOR SERIOUS BURN CASES, IT IS IMPORTANT TO SEEK PROFESSIONAL HELP AND ADVICE AT THE EARLIEST OPPORTUNITY.**

**HOWEVER, IN ORDER TO HELP LIMIT THE AMOUNT OF DAMAGE TO SKIN, APPROPRIATE FIRST AID MUST BE USED TO TREAT ANY BURNS OR SCALDS AS SOON AS POSSIBLE.**

### BRITANNIA BURNS VIDEO

For more advice there is a 10 minute videocast by a doctor on how to treat burns on the Britannia website. It goes into greater detail about what can be done on board when a burn injury occurs.

- IMMEDIATELY GET THE PERSON AWAY FROM THE HEAT SOURCE TO STOP THE BURNING
- THIS MAY INCLUDE DOUSING FLAMES WITH WATER OR SMOTHERING FLAMES WITH A BLANKET AS APPROPRIATE - BUT BEWARE OF BEING BURNT YOURSELF
- COOL THE BURN WITH COOL OR LUKEWARM RUNNING WATER FOR AT LEAST 20 MINUTES – THIS WILL TAKE THE HEAT OUT OF THE BURN, REDUCE THE PAIN AND ULTIMATELY AID HEALING
- DO NOT USE ICE, ICED WATER OR USE ANY CREAMS OR GREASY SUBSTANCES LIKE BUTTER
- REMOVE ANY CLOTHING OR JEWELLERY NEAR THE BURNT AREA OF SKIN BUT DO NOT MOVE ANYTHING STUCK TO THE SKIN
- MAKE SURE THE PERSON KEEPS WARM BY USING A BLANKET BUT TAKE CARE NOT TO RUB IT AGAINST THE BURNT AREA
- COVER THE BURN BY PLACING A LAYER OF CLING FILM/FOOD WRAP OVER IT BUT DO NOT WRAP THIS AROUND THE AREA, JUST USE IT TO COVER AND PROTECT THE BURN AND PREVENT THE AREA DRYING OUT
- USE PAINKILLERS SUCH AS PARACETAMOL OR IBUPROFEN TO TREAT ANY PAIN (COVERING THE BURN AND PREVENTING CONTACT WITH THE AIR WILL ALSO ASSIST WITH PAIN RELIEF)
- IF THE FACE OR EYES ARE BURNT, SIT UP AS MUCH AS POSSIBLE RATHER THAN LYING DOWN AS BEING UPRIGHT HELPS TO REDUCE SWELLING
- FOR ACID OR CHEMICAL BURNS, CAREFULLY TRY TO REMOVE THE CHEMICAL AND ANY CONTAMINATED CLOTHING AND RINSE THE AFFECTED AREA USING AS MUCH CLEAN WATER AS POSSIBLE.

# ANALYSIS OF BRITANNIA BURN INJURY CLAIMS (2016-19)

## 52 OUT OF 72 CLAIMS WERE CAUSED BY EXPOSURE TO A SOURCE OF HEAT

7

CHEMICAL BURNS

4

WELDING INJURIES

3

EXPLOSION/FIRE

4

ELECTRICAL BURNS

2

COLD BURNS

52

HOT BURNS

OF THE 52 HOT BURNS, 16 WERE RELATED TO SYSTEM VALVES SUCH AS FUEL OIL SPLASHING OUT OF THE VALVE, HOT STEAM ESCAPING OR SPRAYS OF HOT WATER (see right).

8 OF THE HOT BURN CASES INVOLVED BOILERS IN VARIOUS WAYS AND THE INJURIES IN THESE CASES WERE MOST USUALLY CAUSED BY HOT WATER SPLASHING ONTO THE CREW.

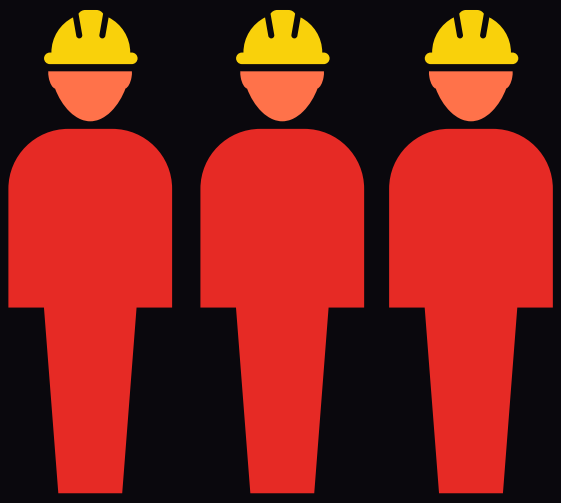
**23–64**
YEARS OLD

## DOES EXPERIENCE = PREVENTION?

When we looked at the age of the crew suffering the burn injuries there was no obvious pattern, with accidents happening across the full age range from 23 to 64 years old. We also found that the accidents were spread over all types of officers and ratings alike and so there was no real relevance of experience or seniority. Injuries are not restricted to the junior or less experienced crew.

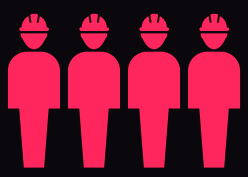
MOST OF THOSE 72 CREW WHO SUFFERED BURNS MADE FULL AND QUICK RECOVERIES

HOWEVER FOR MANY OF THE INJURED CREW THE CONSEQUENCES WERE MUCH MORE SERIOUS



FATALITIES

NO LONGER ABLE TO WORK AT SEA



SKIN GRAFTS REQUIRED

PERMANENTLY DISABLED

LONG PERIODS OF TREATMENT

# THE MOST COMMON SOURCE OF BURN INJURIES

## ON OUR MEMBERS' SHIPS ARE RELATED TO THE CONTENTS OF HOT SYSTEMS SCALDING CREW MEMBERS

One compelling statistic from our claims data is that of the 52 hot burns reported on our Members' ships over the past 4 years, 38 were due to either hot liquids spraying or splashing or hot steam escaping out of a pipe or item of onboard equipment.

Furthermore, 16 of the hot burns (22% of the total of 72 burns cases) related to the release of steam or hot liquid from a system valve, which in most cases was being maintained or dismantled.

Other onboard systems and activities also represent a hazard of burns. However, it is clear that working on valves on systems containing hot liquids and gases represents a specific concern. This is therefore the subject of our latest **B**Safe poster, with the clear message: **YOU DON'T NEED FIRE TO GET BURNT.**

The hot system incidents occurring on our Members' ships resulted in a variety of burns injuries to crew members, in some cases with life-changing consequences. Often, this occurred when crew were working on the system unaware that it had not been correctly isolated, drained or cooled down.

Fortunately none of these claims led to a fatality; the risks of working on onboard steam systems, in particular, have sadly resulted in a number of fatalities in the marine industry over the years.


## A REVIEW OF OUR CLAIMS HIGHLIGHT KEY LEARNING POINTS

### RELATING TO WORKING ON HOT OR PRESSURISED SYSTEMS AND VALVES

- The risks associated with working on such systems may not be readily visible, which may affect risk perception. Never make an assumption on the status of the system.
- A thorough risk assessment needs to be conducted before starting the task to identify the hazards and precautions required.
- Ensure that appropriate lock out / tag out procedures are implemented so that the system is not only isolated, but also de-pressurised and drained of any residual contents.
- Allow as much cooling time as possible before working on the system.
- Always wear protective clothing and equipment appropriate to the identified risks.
- Always dismantle the system with caution - do not rush and beware an any unforeseen release of energy.
- As far as possible, minimise the number of crew members in the area and keep clear of the system being opened.

## WE ARE EXCITED AND PROUD TO SOON BE LAUNCHING OUR NEW PROACTIVE SAFETY CAMPAIGN BSAFE.

THIS IS BEING DEVELOPED BY OUR LOSS PREVENTION TEAM, WITH THE SUPPORT OF THE PEOPLE RISKS DEPARTMENT, AND IS TARGETED AT SEAFARERS ON BOARD OUR MEMBERS' SHIPS.

# BSAFE INCIDENT CASE STUDIES

THE AIM WILL BE TO HELP INFLUENCE BEHAVIOUR AND PREVENT LOSSES USING A MIXTURE OF MATERIAL AND INITIATIVES. BEING SAFE IS NOT JUST ABOUT SAFETY. IT'S ALSO ABOUT BEING HEALTHY AND SECURE. THESE ARE ELEMENTS WHICH ARE ESPECIALLY IMPORTANT IN THE CURRENT CHALLENGING TIMES.

A key element of BSAFE will be about encouraging reflection and learning from previous events. Each month we will be issuing a case study based on a real accident or claim to encourage crew members to reflect on the lessons learned from their own perspective.

As part of the package we will be providing dedicated training material and reflective learning aids to our Members for each case, specially developed by our Loss Prevention team.

To tie in with this special burns edition of Crew Watch, we will soon be launching our first BSAFE Case Study which will look in detail at a tragic case where burns injuries caused by hot sludge led to the death of a seafarer. This is a real accident with very real lessons to be learned and shared.

We look forward to sharing more BSAFE materials with you in the coming months.

# ACCIDENTS WILL HAPPEN | LEARN FROM THE MISTAKES OF OTHERS

**BURN INJURIES CAN OCCUR ANYWHERE ON A SHIP.** WE'VE COMPILED MINI CASE-STUDIES SO YOU'RE AWARE OF THE DANGER ZONES AND WAYS THAT SERIOUS INJURIES CAN OCCUR.

## 1 WELDING FATALITY

### INJURY

Fatality during a welding operation.

### FACTS

A deck rating was carrying out repairs to a hatch cover using welding equipment. A wiper, who was helping with the task, went to collect some additional equipment. When the wiper returned, he saw the deck rating on fire. The probable cause was a leaking acetylene hose and a spark which led to the fitter's overalls catching fire. The fire was extinguished but unfortunately the burns were so severe that the deck rating later died from his injuries.

### LESSONS

Equipment must be in good order and checked carefully before carrying out such tasks.

Tasks should not be carried out alone and there should always be a thorough risk assessment carried out as well a permit to work for the hot work in most cases.

Operators should be suitably trained and familiar with the equipment to be used.

Personnel conducting welding operations need to wear appropriate personal protective equipment (PPE) for the activity, for example, welding goggles, leather gauntlets and long-sleeved natural-fibre boiler suits.

Fire extinguishers should be kept close at hand when working with hot equipment.

## 2 INCINERATOR EXPLOSION

### INJURY

Serious burns to face and hands requiring 4 months of treatment.

### FACTS

The engine room officer was putting some oily rags into the incinerator. He did not realise that hidden in the rags was an aerosol can of zinc spray paint. The aerosol can exploded when it was put into the combustion chamber of the incinerator.

### LESSON

The engine room officer should have checked the rags carefully before putting them into the incinerator

# ACCIDENTS WILL HAPPEN | LEARN FROM THE MISTAKES OF OTHERS

## 3 FURNACE FIRE

### INJURY

2nd degree burns to hands, face, ears and neck causing permanent scars.

### FACTS

An engine room rating was cleaning the incinerator furnace and when he finished, he noticed there was still some unburnt sludge. To try and remove the sludge he mixed kerosene with the sludge. There was a spark from an unknown source and a fire backfired out of the furnace and caused him serious burns.

### LESSON

The engine room ratingr was using an unsafe method to clean the furnace and should have carried out a risk assessment.

He was not wearing adequate PPE for the task.

Incinerators should always be operated by competent personnel, and operating instructions should always be strictly followed.

**THERE WAS A SPARK AND A FIRE WHICH BACKFIRED OUT OF THE FURNACE AND CAUSED SERIOUS BURNS TO THE ENGINE ROOM RATING.**

## 4 HOT FUEL OIL

### INJURY

Burns to face, ear, arm hand and chest with some permanent hearing loss.

### FACTS

The engine room officer was repairing the float gauge of the fuel oil purifier. He opened the cover of the float gauge pipe to remove the broken gauge in order to repair it with new galvanized wire. During the repair process, extremely hot fuel oil came out of the pipe and sprayed onto his face and upper body.

### LESSONS

The temperature of the fuel oil was too high to carry out the repair works – which should have been revealed in the risk assessment.

Subject to the findings of the risk assessment, consideration could have been given to completing a permit to work for the task; this would have then ensured the formal verification of any control measures identified in the risk assessment.

The engine room officer was not wearing adequate PPE for the task.

**DURING THE REPAIR PROCESS, EXTREMELY HOT FUEL OIL CAME OUT OF THE PIPE AND SPRAYED ONTO HIS FACE AND UPPER BODY.**

## 5 CAUSTIC SODA

### INJURY

The deck officer suffered 2nd and 3rd degree burn injuries to his legs which required the ship to divert for urgent treatment and skin grafts were necessary.

### FACTS

The crew were on deck preparing a solution of caustic soda (sodium hydroxide) in a barrel to use for cleaning the tanks. When the ship rolled the solution splashed onto the legs of the deck officer even though he was standing 4m away from the barrel.

### LESSONS

The deck officer was not using the appropriate PPE (he did not think it was necessary).

The sea conditions were too rough for the procedure to be carried out.

The barrel was not covered nor was it properly fixed to the deck.

A proper risk assessment of this activity would have ensured that the hazards and control measures would have been identified and put in place to prevent the incident.

**THE SEA CONDITIONS WERE TOO ROUGH FOR THE PROCEDURE TO BE CARRIED OUT.**

## 6 SULPHURIC ACID

### INJURY

A engine room rating suffered serious burns to his face, ears, neck, both upper extremities and right thigh which resulted in skin grafts and permanent partial loss of sight in his right eye.

### FACTS

The engine room rating was replacing a stripping valve. He removed the valve and put the new one in place. Straight away the new valve started to leak and splashed sulphuric acid onto him.

### LESSON

The line was not cleared of the sulphuric acid before removing the valve. A risk assessment would have identified the hazards and control measures to be adopted, including confirmation that the correct procedure was being followed. This would include isolation of the system, as appropriate, as well as ensuring that the line was fully drained and flushed.

**STRAIGHT AWAY THE NEW VALVE STARTED TO LEAK AND SPLASHED SULPHURIC ACID ONTO HIM.**

## 7 ELECTRICAL SPARKS

### INJURY

An electrical spark caused eye injuries requiring surgery.

### FACTS

The propeller shaft generator had broken down. The engine room officer was working on the electric panel to try and fix the problem. While he worked on two bare cables, they came into contact with each other. This caused a short circuit and a spark. This spark was directly in front of the engine room officer's face and the strong light damaged his eyes.

### LESSON

The engine room officer should have worn PPE, particularly safety glasses, when working with electrical equipment.

He should have considered all the dangers or working with live electricity and prepared a suitable risk assessment and plan. This would have included the need for a permit to work for the activity and to consider the need to appropriately isolate the system in order to prevent the engine room officer from being exposed to a live energy source.

**THIS SPARK WAS DIRECTLY IN FRONT OF THE ENGINE ROOM OFFICER'S FACE AND THE STRONG LIGHT DAMAGED HIS EYES.**

## 8 DE-WAXING SOLVENT

### INJURY

2nd degree leg burns.

### FACTS

A deck rating was carrying out a de-waxing procedure on the deck using chemical de-waxing solvent. While kneeling on the deck, the solvent burned through his boiler suit.

### LESSONS

Although the crew member was wearing a protective boiler suit, this was not adequate protection for the strength of chemical solvent he was using.

He should not have let his knees come into contact with the deck and therefore with the strong solvent.

**THE SOLVENT BURNED THROUGH HIS BOILER SUIT**

# MINI CASE STUDIES

# BEST PRACTICES

- **BE AWARE**
  OF THE HAZARDS INVOLVED WITH THE TASK, AS PER THE RISK ASSESSMENT
- **WEAR WORK CLOTHES**
  AND USE PPE APPROPRIATE TO THE TASK AT HAND.
- **KNOW YOUR SHIP**
  PAY ATTENTION TO SHIP-SPECIFIC TRAINING AND FAMILIARISATION
- **KNOW AND OBSERVE**
  MANUFACTURER'S INSTRUCTIONS FOR THE OPERATION OF MACHINERY AND EQUIPMENT
- **SHARE YOUR KNOWLEDGE**
  OF THE TASK AND ANY HAZARDS WITH COLLEAGUES.
- **DO NOT MAKE ASSUMPTIONS**
  WITH REGARD TO THE SAFETY OF YOUR WORK ENVIRONMENT, IN PARTICULAR HEATED, ELECTRICAL OR STORED ENERGY SYSTEMS AND THE CHEMICAL HAZARDS.
- **PLAN AHEAD**
  AND TAKE APPROPRIATE TIME FOR THE SYSTEM/MACHINERY TO DRAIN, COOL DOWN OR DE-ENERGIZE
- **ASK**
  IF ANYTHING IS UNCLEAR. IF IN DOUBT, STOP AND RE-ASSESS THE SAFETY OF THE OPERATION
- **GOOD HOUSEKEEPING AND MAINTENANCE**
  WILL ENSURE THAT COVERS, INSULATION ETC., ARE IN GOOD ORDER AND IN THE CORRECT POSITION AFTER THE JOB IS COMPLETE.

## AFTER THE INCIDENT

- **UNDERSTAND**
  THE IMMEDIATE ACTIONS IN CASE OF BURN INJURIES, SUCH AS ALERTING, FIRST AID AND EVACUATION
- **DO NOT UNDERESTIMATE**
  THE SEVERITY AND THE POTENTIAL FOR COMPLICATIONS IN CASE OF A BURN INJURY, EVEN IF IT APPEARS TO BE TRIVIAL.

  A LIFE-THREATENING BURN SHOCK MAY STILL OCCUR A NUMBER OF HOURS AFTER THE INJURY