Safety in Heat (OSHAD)
Case Study: Fabrication, Welding, Blasting, Painting & Coatings

Company Profile

PROTECH Fabrication Division became fully operational and integrated Workshop in February 1986, receiving substantial contracts from the first month. The Workshop is comprehensively equipped with fabrication equipment to suit all the needs of oilfield and general industrial engineering requirements.

PROTECH Painting Division was set up in 1980 to cater for the abrasive blasting and painting needs of the local oil industry. The Company has worked extensively at offshore locations as well as in Abu Dhabi and all around the U.A.E. In 1985 we reorganized to concentrate on working mainly within our new Mussafah premises where better facilities and quality control can be met for special coatings. Today PROTECH has many long established customers who recognize the maintenance savings to be achieved by using a professional contractor with the most modern facilities.

Management HSE Commitment and involvement Policy Statement

We in PROTECH are fully committed to the prevention of all accidents, incidents, injuries occupational illnesses to its employees, contractors, and members of the public. In order to ensure these commitments are fulfilled PROTECH shall:

- Ensure that every employee must protect his/her health and safety and the health and safety of other workers by working in compliance with legislation and established workplace practices and procedures.
- Ensure that policy is communicated to all employees in order to ensure complete awareness of their roles and responsibilities in order to have an effective implementation of the policy.
- Comply with all applicable UAE, Abu Dhabi laws and regulations, codes of practices, international standards and relevant best practices to which we subscribe.
- Promote HSE awareness and ensure employees competence to control our HSE risks, through communication of all levels in our organization
- conduct audits, incident investigations and management reviews to ensure effective implementation of the policy
- Continually improve HSE performance by management fostering a positive HSE culture that recognizes individual contributions.
- Set HSE objectives and targets for improvements, measure performance by the management
**Introduction on Safety In heat**

Generally, The Company operates mainly on “Hot works” works that include Welding, Grinding, Gas Cutting, Etc. The workshop also is fully covered with roof so the employees are not exposed to direct sunlight. But still, the climate in the UAE generally is very hot and very sunny. The hottest months are July and August, when average maximum temperatures reach above 40 °C (104.0 °F).

Hot environments in a wide range of industries present serious hazards to employee safety and health. Heat stress, the combination of heat, humidity and physical labor, can lead to serious illness like Heat rash, Heat cramps, Heat syncope, Heat exhaustion & Heat stroke which can lead to death.

Long exposure to extreme heat or too much activity under a hot sun causes excessive perspiration, which can lead to heat exhaustion. Symptoms include headache and a feeling of weakness and dizziness accompanied by nausea and vomiting, there may also be cramps.

In heat exhaustion there is excessive perspiration. By contrast, in heat stroke, there is an absence of perspiration; an extremely high body temperature; hot, dry skin; confusion; and loss of consciousness and/or convulsions. An extremely high body temperature can cause death.

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During the previous years, PROTECH is receiving employee complaints regarding heat stress in the company especially during summer. The complaint alleged that employees were working in a very hot environment; they felt dehydrated, dizzy and weak. The temperatures may have affected an employee’s Health physically and mentally. This poses risks to themselves as well to others. Every time an employee is sent for a sick leave which often causes a delay in the production.

**Investigation Background**

Investigating the above reports, The Company Started the Safety In heat program of Abu Dhabi Occupational Safety and Health Center (OSHAD) and also Initiated a HSE system based on the OSHAD-SF and also to comply with All applicable UAE legal requirements.

Work operations involving high air temperatures, radiant heat sources, high humidity, and strenuous physical work activities have a high potential for inducing heat stress in employees engaged in such operations. The work operations identified in this investigation involved Welders who do the welding, Fabricators that uses Gas cutting equipments, Painters that uses Full Body PPE to protect them from the Hazardous Chemicals such as paints, Thinners, Etc. and also Blasters who wear a full bodied Blasting suit. Employees had developed and experienced heat-induced disorders such as Heat rash, Heat cramps, Heat syncope, Heat exhaustion but luckily no Heat stroke for the previous years.
Investigation Measurements

During the investigation, The Company referred to the Requirements of OSHAD-SF and founded out that we need to improve our HSE systems regarding specially on the Safety In heat for the employees. The Company founded that we missed some important matters regarding the employee’s safety in heat and with the help of OSHAD-SF framework we are able to Improve and achieve a better HSE performance and culture for our company.

Heat Stress Compliance

The further investigation of employee’s exposure to heat stress in the workplace resulted in a quick response of the management and so the Safety in heat program starts. It started first with the Training of the management (Managers and Supervisors) about safety in heat using the OSHAD’s Managers and Supervisors safety in heat training slides to expose and clear roles and responsibilities to them and for reasons such as morally, legally & financially.

The OSHAD SF - Safety in the Heat - V 3.0 - July 2016 generally controls to deal with heat stress from air temperature, as well as the interactions between employees and the environment. The interactions below were investigated during the inspection.

After the managers and supervisors training they are more aware now on how to Comply with all legal requirements of the UAE, Undertake a specific risk assessment focusing on the activities in each area, to Implement control measures to reduce exposure to the hazards present to the workers and to Comply with the midday break rule, and also to Ensure workers are acclimatized prior to the task they do depending on their work, and the management also agreed for a Early planning of work to reduce the exposure to heat for workers and lastly to Ensure all workers are trained on how to Recognize the symptoms of heat stress.
Communicating the OSHAD safety in heat program – After registering on the website of OSHAD (Safety in heat) the company downloaded the training materials on the site, to make the people inside the company aware of the safety in heat even if they are employee or a visitor. after that the company printed and distributed it on specific places on the following company premises:

A.) Main Office (Accounting area) (Reception) - Posters are placed on the main office of the company targeting the Clients, Contractors and Various Visitors of the company and also some of the employees who are visiting there
B.) Fabrication Office - Posters placed on the fabrication office targeting the office employees (Q.C. Engineer, Draftsman, PRO, Fabrication Manager, Foreman, HSE Officer) Clients, Contractors and visitors alike.
C.) **Drinking Station** - A multilingual poster is placed on the drinking station so the people will understand it in their own language therefore not only targeting the employees but also Visitors like Delivery Men and Trailer truck drivers which include different nationalities.

D.) **Company general comfort room** - A poster showing the importance of checking the urine color is placed beside the entrance of the comfort room so every time they come there, they are reminded and informed by the importance of it.
E.) Canteen - Posters are also placed on the entrance of the canteen

F.) Rebar Loading Area - Posters are also placed on the Rebar Loading area targeting employees and Trailer truck drivers
G.) Rebar Coating area (bulletin board) – Posters in the rebar coating area targeting the coating personnel’s

H.) Painting/Contracting area – Posters are placed in Painting area targeting painting personnel’s
I.) Uncoated Rebar offloading area – Posters are placed in Offloading area targeting Offloading Personnel’s

J.) Store & Bundee Clock – Posters are placed in front of the store and near the bundle clock area so targeting everyone who use timecards and store
Training – During the investigation it was noted that employees were not trained on the signs of symptoms of heat stress and were not able to practice self limitation to exposure.

Employers should train employees and supervisors by providing accurate verbal and written instructions about heat stress, including self-determination of exposures. Employees should be aware of the signs and symptoms of heat stress and should be encouraged to detect these signs in themselves and in coworkers. Employees should also be able to practice self limitation of heat exposure based on these signs.

With the help of OSHAD’s training materials, the safety in heat training started.
Heat Stress Reduction – During the investigation it was noted that employees were exposed not only to the Hot Climate but also to the heat during the Hot works (Welding, Gas cutting, Brazing, Grinding, etc.) Factors also include their PPE (Coveralls, Blasting suits, hard hats, Gloves, Welding masks, etc.) contributes to giving heat to them as well. As well as the Working Environment this causes them to be exposed on (Sparks, debris, Chemicals, Dust, smoke, etc.) These hazards cannot be eliminated as low as reasonably practicable but the risks can be reduced. And so, the following actions are taken:

- **Electric Fans** are provided to various places in the company but some of them are not working properly and needed to be fixed. And so the company focused to fix this fans and every single one of them is working properly now and is being used. It gives increased air flow to the workers and it cools them down and at the same time it works as a LEV (Local Exhaust ventilation) to them pushing away the dust, smoke, etc. away from them.
- **PPE - New Blasting Suits** are provided to the blasters that do the abrasive blasting. Old worn out suits do not give adequate ventilation and protection anymore due to deterioration of the suit and the new one gives adequate ventilation and protection to the blasters during their work increasing protection and production for the blasters.
• **ORAL REHYDRATION SALTS (O.R.S)** – Oral Rehydration salts are supplied for the employees to help them fight the heat and replace the salts and minerals that they loss when they sweat heavily. It is given in 10 litres pack to be mixed in a container and 1 Litre Packs and also single glass sachets.
Heat stress hygiene practices – During the investigation it was noted that most employees did drink water, but were not monitored or encouraged to drink cool water every 20 minutes. Additionally, the Water dispenser outside is not cleaned on a monthly basis. And the filter has not been changed for a long time.

And so, the cleaning of the water dispenser is executed to be ensured that the employees drink clean and safe water. The water filters are also changed and tagged to be replaced every 6 months.
**Administrative controls** – During the investigation, it is observed that workers, Contractors and visitors alike, are suffering from heat stress. Dizziness, Lack of concentration and fatigue has been observed. During this time the people are more prone to accident.

The Workshop’s floor has been assessed and it poses slips, trips & falls risk to the people. And also lack of segregation lines can lead to much more accident as if the people who are not working in the company are not aware of the hazards in the area.

And after various proposals with the renovation of the workshop floor and painting of segregation lines has been executed.

**Renovation of the workshop floor and painting of segregation lines** - To reduce accidents due to dizziness, lack of concentration, fatigue due to heat stress.
**Conclusion** – During the overall safety in heat program, it is proved that OSHAD’s safety in heat program has been very helpful and successful. With their training references and training materials everyone in the company is happy and knowledgeable now about the safety in heat. With that, everyone will be more productive, less accidents, less fines. Because it is the employers duty morally, financially & legally to implement safety on their workplace.

Even though we are only a small company, we still managed to make ourselves safe and efficient for work. All of that thanks to OSHAD.

**Company Abatement**

The employer submitted the information below as actions taken to address the issue:

- Posters in different languages are placed in various main location of the company.
- Old Blasting suits have been replaced by a new one.
- Electric fans and local exhaust ventilations has been provided and old ones have been fixed.
- Management Safety meeting regarding OSHAD safety in heat program.
- Training for the workers about the OSHAD safety In heat program.
- Signs were posted educating the staff about heat stress and how to recognize the symptoms in themselves and others.
- Employees were given access to cool beverages especially Oral rehydration salts (ORS).
- Major renovations of the workshop floor to avoid accidents to employees and visitors alike
- Water Dispensers has been cleaned and water filters has been replaced.

**CASE STUDY made and submitted by:**

Kenneth Bautista  
HSE Officer  
Protech Fabrication & Welding Engineers  
Abu Dhabi, UAE  
Mobile: 0529538145  
Phone No: 02 5553854  
Fax No: 02 5544847