

PROCEDURE

Solar Radiation and Heat Stress

The current controlled version of this procedure is located on RSG Network IMS Folder. All other printed copies of this procedure are to be considered uncontrolled and should be validated against the current controlled version on the RSG Network IMS Folder before use.

Document Review Record				
Document No. and Name		WHS-PRO-001 Solar Radiation and Heat Stress Procedure		
Rev No	Description	Prepared by	Checked by	Date
0	New	Mackay Safety Consultants		22.04.2013
1	Update Numbering Structure	L.Strappazon	M.Delaney	08.06.2016
2	Review as per Internal Audit A007.	A.Forrest	M.Delaney	05.07.2016
3	Remove and transfer responsibilities section to QMS-PRO-026 Authority and Responsibilities Procedure	M Richards	L Strappazon	03.11.2016
4	Review	M Vorpapel	D McNeil	25.09.2019
Electronic approval by: Name: David McNeil Position: Operations Manager Date: 25.09.2019				
<small>This document is the property of Reay Services Group. It must not be copied or reproduced in any way whatsoever and/or passed on to any third party without authority.</small>				

TABLE OF CONTENTS

1	PURPOSE	2
2	SCOPE	2
3	DEFINITIONS	2
4	ROLES AND RESPONSIBILITIES	2
5	MANAGEMENT OF EXPOSURE TO UV RADIATION	2
	5.1 Elimination or substitution.....	3
	5.2 Engineering controls	3
	5.3 Administrative controls.....	3
	5.4 Personal protective equipment (PPE).....	3
6	MANAGEMENT OF EXPOSURE TO HEAT STRESS	3
	6.1 Elimination or substitution.....	5
	6.2 Engineering controls	5
	6.3 Administrative controls.....	5
	6.4 Personal protective equipment (PPE).....	6
7	REFERENCE DOCUMENTS	6

1 PURPOSE

The purpose of this procedure is to minimise exposure to UV radiation and to have provisions in place to eliminate heat stress, and to provide for safety to persons from other forms of electromagnetic radiation.

2 SCOPE

This procedure applies to all company employees, service providers and sub-contractors. It covers exposure to solar radiation and heat stress in a hot climate and is therefore relevant to all persons on site.

Class 1 laser devices are assessed as not presenting a hazard to persons on site. If any laser device with a power in excess of class 1 is brought onto a site, then that site shall be required to develop a separate procedure to manage the safety of that class of device.

3 DEFINITIONS

For the purpose of this document, the following definitions will apply:

Company / the Company: Refers to Reay Services Group and associated entities.

Heat Stress: The total heat load burden to which the body is subjected to by both external and internal factors:

- external include temperature, humidity, air movement, radiant temperature of surroundings and clothing
- internal includes physical activity.

SLAM: SLAM is a quick, easy and personalised risk assessment tool.

- The process helps us to identify about how we could get hurt in the task we are about to do.
- This is a system for risk assessment and must be conducted prior to starting any task.

4 ROLES AND RESPONSIBILITIES

All company Employees and Contractors are responsible for complying with the requirements of this procedure.

Refer to QMS-PRO-026 – Authority and Responsibilities Procedure for further details.

5 MANAGEMENT OF EXPOSURE TO UV RADIATION

In order to effectively manage exposure to UV radiation, the following elements need to be taken into consideration:

- identify work areas/tasks that expose workers to undue levels of UV radiation
- put control measures in place to reduce / eliminate such exposure

- put into place a monitoring process to ensure the effectiveness of such controls
- implement an ongoing health surveillance program to ensure control measures remain effective in protecting against UV radiation. This should include regular screening for high exposure groups.
- educate the workforce in the importance of UV radiation protection.

All work areas and tasks which involve UV radiation exposure shall be assessed to determine the level of risk presented to workers. With reference to the 'Hierarchy of Controls', control measures shall be implemented to eliminate or minimise risk wherever practicable.

5.1 Elimination or substitution

In the case of UV radiation, it is not possible to eliminate or substitute the energy source.

5.2 Engineering controls

Where practicable, consideration should be given to the use of structures which prevent or limit UV exposure. Examples include:

- permanent/portable shade structures
- tinted glass
- cabin equipped plant where practical
- umbrellas / tarps.

5.3 Administrative controls

In the case of UV radiation, administrative controls focus on limiting exposure. Examples include:

- alter shift start/finish times to minimise exposure during the more intense UV radiation periods
- task rotation
- planning the tasks/activities to suit the varying intensity of UV radiation experienced through the day. Perform high exposure tasks at early morning or late afternoon.

5.4 Personal protective equipment (PPE)

In the case of UV radiation, PPE is commonly used to protect workers, as it is often the only practical option. Examples of PPE include:

- use of high rating broad spectrum sunscreens or block-outs eg zinc cream. Note: sunscreens are only effective if applied properly and at appropriate intervals throughout the day. Users to confirm suitability regarding allergic reaction with sensitive skins.
- use of broad brim hats and/or brim extensions to suit helmets
- use of safety glasses with the highest possible UV protection which protect the eyes from all angles eg wrap-arounds or safety glasses with side protectors.
- use of clothing, gloves and boots to minimise skin exposure to the radiation.

6 MANAGEMENT OF EXPOSURE TO HEAT STRESS

Heat stress can be a factor in work activities conducted within the company. Workload and environmental conditions such as ambient temperatures, working in locations where heat cannot dissipate easily, and where the need for personal protection can restrict the body's ability to dissipate heat are all factors, which need to be considered.

Heat stress is not by itself a medical condition, however the body's cooling mechanisms need to work to maintain normal function and to prevent adverse conditions such as heat stroke. An important consideration for the body to deal with the external and internal factors is to maintain adequate water intake.

Heat stress is excessive exposure to heat that may lead to a number of heat illnesses ranging from mild (prickly heat) to life threatening (heat stroke).

At any time our body temperature is a balance between heat generated (internally) or taken in (from the environment) and heat lost. It is important to keep this balance and avoid a rise in core body temperature. Core body temperature for an adult is generally around 37.5°C.

Therefore, if we increase heat production by heavy or intensive outdoor work, or staying indoors for long periods in high temperatures, we must make sure we lose body heat.

TO LOSE BODY HEAT YOU MUST BE ABLE TO SWEAT.

Heat stress is characterised by weakness, extreme fatigue, nausea, headaches, and a wet, clammy skin. It should be treated by resting in a cool environment and replacing fluids and electrolytes. If the casualty's condition does not improve seek professional medical assistance.

ALL EMPLOYEES WORKING IN HOT CONDITIONS SHOULD MAINTAIN A HIGH INTAKE OF WATER TO AID IN PREVENTING HEAT STRESS.

Types of Heat Illnesses are:

Prickly Heat

This is an itchy and painful skin rash caused by blockage of the sweat ducts and an increase in pressure in the ducts.

Heat Fainting

Blood vessels in extremities dilate to increase heat transfer to the skin causing reduced return blood flow to the heart. In turn this temporarily reduces the blood flow to the brain and the person faints.

Heat Cramps

These are painful muscle cramps of complex origin.

Heat Exhaustion

A serious heat illness that may progress to heat stroke if not promptly treated. It is most common in non-acclimatised individuals. The person complains of weakness and/or nausea and/or giddiness and appears pale, breathless and exhausted. Skin is usually moist (sweating).

Heat Stroke

Heat stroke is a true medical emergency with a high fatality rate in untreated cases. This is caused by a rise in body core temperature to dangerous levels of 41°C and higher.

Heat stroke results from the failure of the heat regulatory system in the body. The failure of sweating leads to the loss of evaporative cooling of the skin and an uncontrolled rapid rising of the body temperature. In milder cases of heat disorders, sweating may still be evident in spite of high body temperature.

Heat stroke has three major signs:

- hot dry skin of red, spotted, or bluish or purplish coloration

- rising, high body temperature
- mental confusion, delirium, fainting, convulsions, and coma

Unless promptly and properly treated, heat stroke may be fatal. The victim may suffer permanent brain injury and complications such as kidney, liver, and blood circulation disorders. Survival and complete recovery after undergoing an initially high body temperature is possible if prompt and effective cooling is provided. The victim must be moved to a cool area; further, soaking of the victim's clothing with cold water and fanning will cool the body. Prompt treatment by a medical professional must be obtained as a matter of urgency.

ANYONE DOING HOT WORK THAT EXHIBITS CONFUSION AND ODD BEHAVIOUR SHOULD BE TREATED INITIALLY AS HAVING HEAT STROKE.

Note: On becoming aware of the heat stress indicators either in yourself or another person, contact should be made with your supervisor immediately, and work ceased by the individual until the circumstances have changed.

The supervisor is to ensure a certified First Aider has attended the person suspected to have heat stress, and co-ordinate any further medical assistance that may be required.

6.1 Elimination or substitution

In the case of heat stress caused by sun exposure, it is not possible to eliminate or substitute the energy source.

6.2 Engineering controls

Where practicable, consideration should be given to the use of structures or other devices which minimise heat exposure. Examples include:

- permanent/portable shade structures
- tinted glass
- Preference for cabin equipped plant where practicable to perform work previously performed by manual means and involving human exposure
- introduction of air movement/cooling devices to increase the body's ability to dissipate heat via the skin eg fans, air conditioners, evaporative coolers, personal cooling devices
- insulation to minimise heat transmission
- umbrellas / tarps.

6.3 Administrative controls

In the case of heat stress, administrative controls focus on limiting exposure to sources of heat. Examples include:

- Alter shift start/finish times to minimise exposure during the hotter periods.
- Task rotation.
- Planning the tasks/activities to suit the varying intensity of heat experienced through the day. Perform high exposure tasks at early morning or late afternoon.
- Acclimatisation - ensure people moving from other areas with differing climates and environmental conditions are educated and given the flexibility to adjust.

- Ensure potable water is readily available and people understand the importance of maintaining sufficient fluid intake.
- Education of the workforce in the importance of managing heat exposure is one of the most important control measures. Individuals should be made aware of the effects and conditions associated with heat stress to minimise risk.

6.4 Personal protective equipment (PPE)

In the case of heat stress, PPE is not commonly used although clothing and broad brim hats assist in minimising exposure by providing direct shade for the skin. Other devices such as personal coolant vests/neck rings can also provide benefits.

Note: A risk assessment shall be conducted to identify activities where heat stress is a real possibility. Once the activities have been identified JSEA's should be carried out for each individual activity. As with all other hazards the hierarchy of controls must be applied such that the most effective control is considered.

Broad brimmed hard hats

It is the responsibility of the supervisor to ensure adequate controls are put in place for identified potential heat stress activities.

7 REFERENCE DOCUMENTS
