



Cooperative Research Centre for
Landscape Environments
and Mineral Exploration



Policy and Procedures On Field Safety

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Emergency Contacts - Departments - Universities ¹

Emergency Contacts	Name/s	Phone Number	Mobile
GeoscienceAustralia			
CSIRO – Divisions of Exploration & Mining & Land & Water			
ANU			
Curtin University of Technology			
University of Adelaide			
Primary Industries & Resources, SA			
NSW Department of Mineral Resources, Geological Survey			
Minerals Council of Australia			

¹ Need to find names and contact phone numbers. Or the position that person is in so if that person leaves the number stays the same.

POLICY AND PROCEDURES FOR FIELD SAFETY

FORWARD

The objectives of this Policy and Procedures are to assist in reducing accidents, injuries, incidents and occupational diseases in any staff involved in fieldwork by ensuring that proper attention is given to safety management in all on-shore exploration activities.

In accordance with the Policy and Procedures on Field Safety it is the responsibility of the Agency or University to ensure that all field work is conducted safely.

The field work location is recognised as a workplace under the relevant State and Commonwealth Legislations.

Accordingly supervisors, staff and students are required to meet their legal obligations for Occupational Health and Safety during field work planning and participation.

SECTION 1 - INTRODUCTION

This document describes and recommends procedures to ensure the safety of staff and students engaged in fieldwork. High safety standards are essential during fieldwork particularly in areas remote from normal communication, medical services and other forms of assistance. Risks are greater in remote locations as the consequences, of even relatively minor incidents or accidents, can be serious.

Fieldwork is conducted in a number of different and diverse sites around the country. It is still considered as work and the area is considered to be a workplace and as such, **all OH&S regulations must be observed.**

Contingency, hazard identification and risk analysis are essential elements in planning a field trip. With respect to field safety there are two major areas that need to be addressed to ensure the well being of field operatives when things go wrong:

- The preparedness, skills and knowledge of the people going to the field and the equipment they have on their person and/or vehicle; and,
- The attitudes and behaviours of both the field party and those persons at “base” who are responsible for creating a safety net based on:
 - a regular call in schedule;
 - open and informative communications between the field operatives and “base”; and,
 - A shared knowledge and responsibility for those procedures that will be put in train, if and when, things do not go to plan, or a “No Message”.

1.1 RESPONSIBILITIES

All participants in field activities have the responsibility to ensure their own safety and the safety of others, by participating in field activities in a safe and competent manner, and with care in respect of other participants.

Employer/University Responsibilities

Every Employer/University has a responsibility to:

- provide the necessary training and instruction for staff or students to perform their duties safely and to provide and maintain, as far as practicable, a working environment that is safe and without risks to health
- develop and implement safe working procedures for field operations, including consultation with employees and employee representatives or students and student representatives in general health and safety matters relating to field operations.

[identify correct title for responsible officer in your agency] and Supervisor Responsibility

[identify correct title for responsible officer in your agency] or supervisors in charge of the field trip will ensure that:

- provide a safe workplace and procedures under their area of control;
- identify staff training needs and arrange for the provision of appropriate training;
- the field activity complies with the OHS requirements and policies of the Department and with the minimum OHS requirements;
- staff members in charge of field activities are aware of, and understand their safety responsibilities;
- adequate resources and budgetary provision are allocated to ensure sponsored field activities meet the minimum OH&S requirements set out in this document;

Employees/Students Responsibilities

It is the responsibility of all employees /students to:

- comply with all instructions given by their employer for reasons of health and safety and take reasonable precautions to protect themselves and others at work.
- report any problems in achieving compliance to their supervisor, *[identify correct title for responsible officer in your agency]* or HSR in the first instance or the OHS Advisor where specific or technical advice is required.

Contractors

All contractors undertaking a field trip have a responsibility under the relevant State and Commonwealth legislation's to work safely in the field, taking reasonable care to protect their own health and safety as well as that of other people participating in the field trip.

It is frequently necessary that staff is required to work with or rely on contractors when working in the field. A contract should include clauses about:

- compliance with safety laws and standards
- compliance with the principals and contractors policies procedures and rules concerning health and safety
- cooperation in the promotion of health and safety awareness
- safety training, certificates of competency, skills training
- safety audit the contractors equipment and work methods by both the principal and the contractor and removal of defective equipment.
- reporting of accidents and incidents
- conduct of the employees of principal and contractor supervision, safety representative and first aid certificates.

Safety Information

Participants of field activities must be provided with safety information before and during field activities.

Written safety procedures must accompany the briefing with specific information regarding safety aspects such as:

- minimum dress requirements, including a warning that correct dress is mandatory for participation in activities;
- discussion of correct maintenance and use of safety equipment required for the various activities that are to be carried out;
- discussion of potential hazards which are likely to be encountered and the steps individuals must take to minimise the risks associated with these hazards;
- Introductions to the staff-in-charge and first aider(s) attending the field activity.

The safety briefing must include as a minimum:

- the need to follow the general rules outlined in this policy;
- the need to follow all instructions as given by the person in charge of field activity.

General Rules

These general rules represent the minimum standards required of all staff /students attending field activities.

- All staff /students must comply with the health and safety requirements of their Agency/University. If you are not sure, ask your supervisor or the relevant person in charge of the activity.
- Employees/students will report all accidents and incidents and promptly report all near misses that may have resulted in personal injury, property loss or harm to the environment and take immediate action to make safe the substandard condition if a hazard is identified.
- All vehicles are to be driven safely and in compliance with the requirements of the relevant state and federal laws.
- Personal protective equipment must be worn as required, checked regularly and kept in good condition.
- All staff/students must be capable of carrying out their work in an alert and efficient manner.

- No staff member/student will be permitted to work whilst under the influence of intoxicating liquor or illegal drugs. The misuse of drugs is not allowed on any field activity.
- No pets or firearms are permitted on field activities.
- Any staff member/student who has knowingly breached the policy, rules or procedures of the Department may face disciplinary action.

1.2 ADMINISTRATIVE CONTROLS

Safety Officers

An officer responsible for dealing with safety is to be appointed for each field survey. This should be done in consultation with all field staff/students undertaking the survey work. Where a trained health and safety representative is participating on the field survey, they will be the officers responsible for dealing with safety issues and report to the party leader.

The role of the safety officer is to ensure that procedures are in place for dealing with safety concerns and that appropriate action is taken. They should also conduct regular safety audits and inspections and hold regular meetings with the field staff/students where safety issues or concerns can be raised and suitable solutions agreed to.

Safety Audits, Inspections and Safety Meetings

The need to conduct regular safety audits, inspections and meetings are two-fold:

- 1) to meet legislative requirements under the relevant Commonwealth or State Legislation and related Regulations; and
- 2) to identify hazards, high risk areas and faulty equipment and/or procedures that could cause injury or endanger the safety of field workers /students and visitors.

Inspections should be conducted on a regular basis by the appointed safety officer and field party leader and should be followed up by a verbal or written report to all the field staff/students through tool box meetings and/or safety meetings. Where a safety concern is raised and requires action, a documented recording should be made.

Incident Reporting

Under the Commonwealth and State Legislation it is a requirement that all serious personal injuries and dangerous occurrences are reported to the insuring agency: eg Comcare, GIO.

All incidents, accidents and dangerous occurrences are to be reported through the safety officer and party leader of the Agency or University in the field who will then determine what action must be taken. A Hazard/ Incident Form is then to be completed and sent to the Safety Officer. Where an incident or accident results in an employee being seriously hurt or killed, the Safety Officer and the Head of Division/University must be notified immediately so that the appropriate authorities can be contacted. An investigation into the incident will need to be undertaken.

1.3 EMERGENCY CONTROL

What is Emergency Control? Emergency Control is a systematic approach for dealing with emergencies such as evacuations, fire control, bomb threat etc. It is necessary for all buildings, workplaces and authorities where people work to have emergency control procedures, and the same principles should also apply to field parties and field camps.

The following points should be considered when developing Emergency Control Procedures:

- communication equipment is appropriate for the conditions you are working in and is able to receive and send emergency calls;
- a list of all emergency numbers (Police, Bush Fire Brigade, RFDS and medical services, land owners etc) and frequency numbers are available in clear eye-sight at the communication facilities and within vehicles;
- procedures are developed for evacuation (access points, roll call, transportation, emergency supplies and equipment, first aid kits);
- first aid facilities are available and staff trained in administering first aid.

These simple steps can save lives in the case of an emergency situation, such as flood, bushfire or severe accident.

1.4 RISK MANAGEMENT

A comprehensive identification of the hazards to be encountered during field activities and an assessment of the risks associated with these hazards must be undertaken during the planning for the trip.

Agency/University members in charge of activities are responsible for ensuring that the risk assessment has been completed before the commencement of the field activity.

Potential hazards identified by the persons in charge of the field activity must be disclosed to participating staff before departure, together with the risk control procedures to be adopted.

The effectiveness of risk control measures must be reviewed and improved following any incidents that occur during a field activity and before the activity recurs.

The hierarchy of hazard controls must be used to determine the appropriate risk controls to be adopted. Identify the hazards, assess the risks, control the risks and monitor and review

The purpose of risk management is to manage the risk before it becomes a problem. The three key stages to injury reduction are:

Stage	Title	Description
1	Risk identification	The first stage is to identify tasks which are likely to constitute a risk to health and safety
2	Risk assessment	The second stage is to conduct an assessment of particular risk factors
3	Risk control	The third stage is to consider and implement control measures to eliminate or reduce/minimise risks.

(Risk Assessment Form at Attachment A)

SECTION 2 - HEALTH AND FIRST AID

2.1 FITNESS TO UNDERTAKE DUTY

Working alone and/or in remote areas can be both physically and mentally demanding. The fitness of participants should be taken into consideration when planning any trip. The psychological and physical condition of each participant should be determined for any trip, and personal/family issues should be taken into account, particularly where a person is recommended for a long posting in a remote area.

People Issues

Where field participants are required to take long field trips into a remote area, whether alone or in a group, they need to consider their personal and family issues.

The following suggestions are made to:

- *settle any personal differences*
- *contact the agency on regular schedules*
- *contact home on regular schedules*
- *set personal goals for the field trip and work towards them*
- *take books or appropriate hobbies to prevent boredom*
- *take an interest in fellow travellers*
- *be considerate of others enjoy the experience*
- *remember safety first and last*
- *Finish the trip as positively as when starting*
- *return home safely.*

2.2 PROVISION OF FIRST AID

All participants must be trained in the appropriate level of first aid before being approved to attend the field activity.

Sufficient first aid kits, appropriate for the field activity, must be taken on each field activity

First Aid Training

All staff/students regularly participating in fieldwork must hold a current first aid certificate and cardio-pulmonary resuscitation (CPR) from an approved provider. It is preferable that anyone attending the field trip on a temporary basis also undergoes accredited training.

In work areas that contain a high degree of special hazards (dealing with hazardous substances etc.), or where response time for medical services is likely to take longer, additional and specialised first aid training will need to be considered.

*[identify correct title for responsible officer in your agency]*in charge of field projects are responsible for ensuring that field participants have received suitable training before commencing field activities.

It is the responsibility of the individual to ensure that their particular qualification is kept current and notify the appropriate supervisor when retraining is required.

Appointment of Field First Aid Officers

All field projects must nominate a suitably trained officer as the projects Field First Aid Officer. If a project has failed to nominate a First Aid Officer the *[identify correct title for responsible officer in your agency]* in charge of the field project will be seen as responsible for the provision of first aid facilities.

[identify correct title for responsible officer in your agency] of large-scale field operations/projects will need to consider the appointment of more than one First Aid Officer for the project.

Responsibilities of Field First Aid Officers

First Aid Officers in the field are responsible for rendering first aid treatment to their fellow employees/students and where appropriate to members of the public who may be visiting the field site.

First Aid Officers are not required, and should not attempt to administer first aid when they are at risk of personal injury.

First Aid Officers must not disclose any information on the health, personal affairs or medical records of individuals, which they acquire in the administration of first aid.

First Aid Officers are required to record any treatment they administer, including the issue of pain relief medication (forms will be provided to the nominated First Aid Officer). These reports are to be treated as confidential and be forwarded to the Human Resource area at the end of each month.

In all cases of work place accidents, a Geoscience Australia/CSIRO/University Adelaide/Curtin University/etc (*choose the correct agency title*) accident report must be completed by the injured employee and where the employee is unable to do so, the person's immediate supervisor shall fill out the report form.

The nominated First Aid Officer is responsible for ensuring that first aid equipment provided for the field party is suitable, accessible, and appropriately stocked at all times.

First Aid Officers are responsible for keeping pain relief medication and restricted Royal Flying Doctor Service (RFDS) kit with drugs (if taken) locked away. This type of medication is only to be issued to the requesting employee via a First Aid Officer.

Instructions issued with RFDS first aid kits are to be adhered to at all times.

All staff /students trained in first aid should be aware of precautions relating to HIV and other communicable diseases. Divisions/Projects should ensure that officers are provided with equipment that reduces the associated risks, including resuscitation masks goggles and disposable gloves.

In the absence of a nominated First Aid Officer in the field (called away etc.), the aforementioned applies to any qualified officer that administers first aid.

First Aid Kits

First aid kits must be readily accessible in case of an emergency. The first aid kit must be portable so it can be carried to an injured person. The upkeep of first aid kits used in the field is the responsibility of the nominated First Aid Officer.

The contents of any first aid kit must be kept clean and serviceable. No part of the kits is to be used for any purpose except first aid.

In work areas that contain a high degree of special hazards (dealing with hazardous substances etc.), or where response times for medical services are likely to take longer, additional and specialised first aid facilities will need to be considered.

Types of first aid kits

Personal Kit

- *To be carried by all employees that work away from the main camp or vehicle (eg. traverse work). One kit to be carried per employee. It is recommended that Officers carry their personal kit with them during all field activities.*

Vehicle and Small Camp Kit

- *To be carried in the field vehicle and at least one kit to be available at the base camp. This will provide adequate coverage for small field camps (less than 20 Officers). If the field trip is in a very remote area consideration should be given to the RFDS kit.*

Royal Flying Doctor Service Kit (RFDS)

- *For use in large field camps (more than 20 Officers) or in remote areas. Field camps must have direct contact with the RFDS by permanent telephone or radio communications.*

Field parties should ensure that they carry a range of first aid kits to cover all requirements.

First aid kits that are currently in use by field projects must be reviewed and updated so the contents reflect the policy requirements.

2.3 FIRST AID KITS AND CONTENTS

An example of contents of first aid kits for field activities must be selected using this guide as a minimum requirement.

Personal Kit

Item	Use	Quantity
First aid guide	Reference	1
Sterile gauze pads (75 X 75 mm)	Cleaning wounds	3
Triangular bandage	Sling, bandage	1
Stretch bandage (50 mm wide)	Dressing retention, venomous bites	1
Stretch bandage (75 mm wide)	Dressing retention, venomous bites	1
Hand towel (disposable)	Cleaning (NOT WOUNDS)	3
Adhesive dressing strip	Small cuts, abrasions etc.	5
Adhesive strapping	Dressing retention	1 roll
Non adhesive dry dressing (100mm X 100 mm)	Burns, cuts, abrasions	2
Sterile wound dressing	Bleeding control, eye pad	1
Safety pins	As required	5
Scissors, rust resistant (at least one blunt point)	Cut dressings and clothing (use blunt point against skin)	1
Splinter forceps, rust resistant (tips to be protected)	Remove splinters etc.	1
Pencil and note book	Record time, details, message etc	1
Plastic bag	Severed parts, making ice packs	3
Alcohol swab	Cleaning around wounds	2
Accident blanket	Protect casualty	1

Vehicle and Small Camp Kit

Item	Use	Quantity
Adhesive strips (SO's)	Small cuts, abrasions etc.	1 pkt
Adhesive strapping	Dressing retention	1 roll
Plastic bag (small)	Severed parts, making ice packs	1
Plastic bag (medium)	Severed parts, making ice packs	1
Plastic bag (large)	Severed parts, making ice packs	1
Non adhesive dry dressing (75 mm X 75 mm)	Burns, cuts, abrasions	2
Eye pads, sterile	Eye wounds	3
Stretch bandage (100mm wide)	Dressing retention, venomous bites	2
Stretch bandage (50mm wide)	Dressing retention, venomous bites	2
Gloves (disposable, single)	Infection protection	6
Accident blanket	Protect casualty	1
Safety pins	As required	1pkt
Scissors, rust resistant (at least one blunt point)	Cut dressings and clothing (use blunt point against skin)	1
Splinter forceps, rust resistant (tips to be protected)	Remove splinters etc.	1
Saline, 10 ml (sterile)	Eye irrigation, cleaning wounds	6
Antiseptic (10 pk)	Cleaning around wounds	2
Kidney dish	Washing, cleaning etc.	1
Triangular bandage	Sling, bandage	6
Sterile wound dressing (No. 14)	Bleeding control, eye pad	2
Sterile wound dressing (No. 13)	Bleeding control, eye pad	2
Antiseptic (250 ml)	Wound treatment (see instructions)	1
Panadol (or equivalent) 24	Pain treatment	1
NOT TO BE KEPT IN KIT (refer to policy)		

Betadine (or similar, 100 ml)	Wound treatment cleaning (see instructions)	1
E.A.R mask	Infection protection	1
Goggles	Infection protection	1
First aid guide	Reference	1

Royal Flying Doctor Service Kit (for those using RFDS)

A communicable diseases prevention pack (St. John or similar) should also be available for use in conjunction with the RFDS kit.

First aid kit and contents to be used only as per instructions (issued by RFDS with kit).

SECTION 3 - PERSONAL HEALTH AND SAFETY

3.1. PHYSICAL WELL BEING

Most fieldwork involves some form of physical activity and staff/students going into the field should be physically fit for the duties they are required to perform. It is important for staff/students to monitor their fitness and to prepare themselves for the fieldwork they are to undertake.

For example, if you are required to traverse on foot for lengthy periods, you should undertake regular exercise (eg. a 30 minute brisk walk each day) before going to the field to condition yourself, particularly when working in extreme temperatures. Where field duties involve manual handling activities, ensure you are aware of the correct safety procedures for lifting, carrying or using equipment and that you have the physical capacity to complete the tasks.

If a staff member/student has a pre-existing medical condition that may affect their work performance and/or health and safety, their supervisor or [identify correct title for responsible officer in your agency] should be made aware of the situation. The Commonwealth Medical Officer (or other Medical Professional) may need to be consulted if it is considered that a staff member is not fit to perform field duties.

Organised medicals for staff by an occupational therapist may be an option where demanding tasks are required and the work is considered "high risk" to injury or disease. The Project [identify correct title for responsible officer in your agency]/Field Leader the Safety Officer will determine the type of programs required through consultation with staff/students and risk management assessments.

Diet is another important factor that should not be overlooked whilst in the field. Try to maintain a balanced diet with a reduced fat intake. Drink plenty of fresh (clean) water and if you drink alcohol, do so in moderation, especially when required to perform physically demanding tasks in extreme conditions as too much alcohol will affect your performance and fitness (see section on alcohol and drugs).

3.2. PROTECTION FROM DISEASE

This section looks at communicable diseases and their prevention whilst on field survey, particularly when working in remote areas of Australia.

Communicable or Infectious Diseases of Concern

Gastroenteritis

Gastroenteritis is an infection of part(s) of the bowel from the stomach through the duodenum and small intestine to the large intestine. It is commonly caused by enteroviruses but can be caused by bacteria such as salmonella and protozoan such as giardia and amoebae.

The typical symptoms are diarrhoea and/or vomiting, which can be severe or persistent depending on the infecting organism and other factors such as the state of health of the infected person. Blood and or mucous may also be passed in the bowel motions.

Gastroenteritis is caught by "faecal-oral" spread of microorganisms. In other words microorganisms get from the bowel to the hands of an infected person, then onto food or drink which is consumed by someone else who in turn becomes infected and sick. Contaminated water and flies can also spread these sorts of diseases; flies by alighting on food after faeces.

Hepatitis A

Hepatitis literally means inflammation of the liver, which is the metabolic factory of the body. A number of viruses can cause hepatitis. The viruses are spread in different ways - Hepatitis A can be spread in the same way as gastroenteritis, ie. by consuming contaminated food or water, so it is a condition of concern to field conditions.

Yellow jaundice, feeling very unwell, loss of appetite and vomiting are some of the symptoms of hepatitis. Although vaccination gives some protection against hepatitis A it seems prudent to take simple preventative measures as well.

Skin diseases such as bacterial and fungal infections and dermatitis

Cuts and scratches are more likely to become infected in field conditions. Fungal infections of the feet or groin such as tinea can be aggravated by sweating which will be greater in hot climates. The persistence of dirt in body creases such as the armpits and groin will make infection in these areas more likely.

Vector-borne diseases such as Ross River Virus and Malaria

Ross River Virus is spread by mosquito bites. It is thought that primary reservoirs exist in native animals and possibly amongst mosquitoes themselves. The symptoms are similar to those of many viral illnesses and range from none to minor to severe, persistent and debilitating; with inflammation of the joints being a feature. The risk of catching the conditions increases with the frequency of mosquito bites in infested areas.

There is a risk of malaria if working in New Guinea, but not in Australia.

Diseases of Intimacy (sexually transmissible diseases)

Epidemiological, travelling is associated with an increase in casual sexual encounters, ie. sexual intercourse with new partners once or on a few occasions. It is important to remember that the proper use of a condom (with a water-based lubricant) usually prevents sexually transmissible diseases of all types such as HIV (which leads to AIDS), hepatitis B, genital herpes, gonorrhoea and non-specific urethritis. HIV is common amongst both sexes in many parts of the world.

Vaccine preventable diseases

The risk of becoming infected with a number of important infectious diseases can be prevented or substantially reduced by vaccination. The usual requirement is a course of injections to confer immunity and subsequent booster doses to maintain immunity.

Tetanus:

This is acquired from contamination of wounds with dirt or horse manure, is a classic example of an infectious disease, this was previously dreaded but is now be prevented by vaccination.

Make sure you are covered for tetanus in particular before going to remote areas of Australia where medical aid will take longer to obtain.

Some Simple Measures Which Will Reduce Your Risk of Catching Infectious Diseases on Field Trips***Hand Washing***

Washing your hands with individual clean soap (e.g 1 soap per person prevents cross infection) and clean water after going to the toilet significantly reduces the risk of faecal-oral spread of gastroenteritis and hepatitis-causing organisms.

Food and Drink

Keep food (and fluids) covered so that flies can not get at it. Take the following precautions if the quality of water and food in a remote area is not known:

- *boil water for at least ten minutes to sterilise it or use water purification tablets (boiling is preferable);*
- *avoid ice in drinks, ice-blocks and ice-cream, as freezing does not sterilise water;*
- *avoid salads, raw or cold seafood including shellfish, unpastuerised milk and milk products;*
- *only eat fresh fruit or vegetables that you have peeled;*
- *ensure that food is well cooked; and,*
- *do not store food at room temperature for long periods.*

[Canned food, commercially bottled beverages and hot drinks such as tea and coffee are generally safe to drink.]

Washing

Wash daily if possible, using a washer if facilities are not available for showering. As well as looking after your skin, this will ensure your colleagues will not avoid you! Using your own towel, washer and soap will ensure that skin infections such as tinea are not spread this way. When showering, it is also good practice to wear thongs or similar footwear, especially in communal showers as this will help prevent the spread of tinea.

Toilet facilities

If camping without toilet facilities make sure that areas used for toileting are well away from water used for washing, and that faeces and toilet paper is well covered so that flies will not get at it.

If camping with toilet facilities, keep the facilities as clean as possible by daily disinfection so that flies will not be attracted to them.

Hair

Hair harbours microorganisms. Short hair is easier to keep clean than long hair in field situations.

Prevention of mosquito bites

Relatively simple measures such as:

- *using insect repellent containing up to 20% DEET on exposed skin and clothing;*
- *wearing long sleeves and long trousers, particularly when outside after dusk;*
- *using mosquito netting at night if staying in accommodation that is not mosquito proof (treating nets with Promethan will provide added protection for up to 3 months); and,*
- *using space sprays, mosquito coils and electrical vaporisers indoors.*

These measures make a big difference to the number of mosquito bites that can be sustained, and therefore to the risk of catching mosquito-borne diseases such as Ross River Virus in Australia and Malaria in New Guinea.

Anti-malarial medications need to be taken when working in malaria areas. These medications must be commenced a week before departure, continued on a regular basis when away and for 4 weeks after return.

The simple measures outlined above are still important when taking anti-malarial tablets, as the tablets by themselves do not provide total protection against malaria.

First Aid

Treat cuts, scratches and bites by cleansing with warm water or saline. A sterile dressing should be used if required. Ensure that the first aid kit is well stocked and gets restocked after use.

Note: antiseptic is not recommended as it has a shelf life and could be contaminated after one use and hinder re-generation of skin)

Other Health Matters

Medications

If you are on any regular medications it is worthwhile visiting your doctor before travelling to ensure that you have sufficient supplies and a letter in case you require medical attention or a repeat prescription while away. Store your medications safely and as far as possible in accordance with the instructions on the packet. Consider medi-alert tag for pre-existing medical conditions.

Vaccinations and Malaria Prophylaxis

The first appointment in relation to vaccinations prior to travelling should be 8 weeks before departure to allow plenty of time for courses of vaccine if required. Rushed courses of vaccines are not as effective as correctly spaced courses.

Advice should be sought from the Australian Government Health Services on the type of disease prevention required in all overseas countries. With staff undertaking field duties in Papua and New Guinea and other Asian and Pacific countries, vaccinations for prevention of the following diseases is recommended:

- Typhoid, Hepatitis A & B, Tetanus, Polio, Malaria

Alcohol & Drugs

Alcohol and drug abuse has been documented extensively as causing a variety of health problems. It is also a problem in the workplace as both alcohol and drugs may affect staff performance as well as their safety and competency.

It should also be noted that claims made for worker's compensation are subject to certain strict conditions in relation to alcohol and drugs use. Section 4(13) of the Safety Rehabilitation and Compensation Act states:

"For the purpose of the Act, an employee who is under the influence of alcohol or drugs (other than a drug prescribed for the employee in accordance with that prescription) shall be taken to be guilty of serious and wilful misconduct."

Hence, if a person is injured under the influence of alcohol and/or drugs while on duty, s/he is not eligible for worker's compensation.

Alcohol and drugs affect people's performance as well as their safety and competency when working

- No staff member/student is allowed to consume alcohol or drugs while on duty.
- No staff member/student shall be under the influence of alcohol (including hangover) or drugs while on duty. If, in the opinion of the supervisor and the site safety person, a staff member/student is unable to function safely, the individual will be directed to leave the work area..
- Should staff member/student be directed to leave the work area on the grounds of apparent excessive alcohol level, or if the matter is in dispute, s/he can request to undertake a breathalyser test. The site safety person should contact the closest police station to arrange a breathalyser test. A blood alcohol level of 0.05 is considered to be the socially acceptable upper limit while on duty.
- Whilst in control of a Commonwealth/University vehicle or heavy plant, a blood alcohol level of 0.02 is allowed. This recognises the small quantities of alcohol found in some medicines, mouthwashes and foods.

SECTION 4 - ENVIRONMENTAL HEALTH HAZARDS

4.1 HEALTH PROBLEMS CAUSED BY SUNLIGHT

Skin Cancers

There are generally three types of skin cancers related to exposure to sunlight.

- *Basil cell carcinoma (BCC)* - most commonly found on the face, neck and upper trunk, but can arise on any areas exposed to the sun. BCCs start off as small round or flattened lumps, which are either red, pale or pearly in colour and may have blood vessels (these look like tiny veins), over the surface. These are the most common types of skin cancers and if left untreated, they will continue to spread into surrounding tissue, eventually breaking down to form ulcers.
- *Squamous cell carcinoma (SCC)* - usually found on the back of hands, forearms, the face, ears and neck. SCCs start off as scaly red areas, which may bleed and ulcerate a little, looking like a sore that does not heal. These skin cancers are less common than BCCs, but if left untreated they can spread to other parts of the body.
- *Melanoma* - the most dangerous type of skin cancer, but the least common. Melanoma usually starts as a new spot, freckle or mole on the skin that changes in colour, thickness or shape over months. Melanomas may also develop in pre-existing moles, especially those moles that have irregular outlines and variable shades of black and other colours. If left untreated, melanomas can spread to the internal organs and cause death.

Other Types of Skin Damage

- *Keratosis* - also called sunspots, are dry, rough, firm spots on the skin that may develop into skin cancer. They are a warning that your skin has had too much sunlight.
- *Sunburn* - first sign is a reddening of the skin, which in severe cases may be followed by swelling, blistering and, later, peeling.
- *Premature ageing* - wrinkling, discolouration and drying out of the skin.

Eye Damage

Too much sunlight may cause short term and long term damage to the eyes. The following short-term symptoms may be experienced:

- painful feeling or the feeling of a foreign body in one or both eyes;
- excessive blinking or tears;
- difficulty in looking at strong light.

Long term eye damage may result in the development of:

- *cataracts* - when the lens of the eye becomes cloudy;
- *pterygia* - wing-shaped growths of tissue on the outside of the eye that can cause irritation and may grow over the cornea.

Checking for Skin Cancer

It is important for you to check all parts of your body regularly for skin cancer, in particular those areas that are most often exposed to the sun, that is the face, lips, ears, neck, shoulders, arms and hands. If any of the signs of skin cancer listed above are detected, consult a medical practitioner promptly. Treatments for these conditions are more effective if the conditions are detected early in their development.

Information about early detection of skin cancer is available from member organisation of the Australian Cancer Society and information kits are available from the Safety Officer

Preventative Strategies

There are a number of ways to minimise exposure to sunlight. These include the use of protective clothing and hats, approved eye protection, use of sunscreen; reviewing working arrangements and utilising shade wherever possible. The following are to be implemented wherever practical:

- ***Clothing*** - this should be loose fitting yet should keep the sun off your skin and allow sweat to evaporate (cotton is the best fabric). It is best to wear closely woven, light coloured clothes that reflect sunlight can keep you cool).
- ***Hats*** - with brims at least 8 centimetres wide to protect your face, lips, ears and neck. Hardhats can be fitted with attachable brims and flaps on back of hats (like French foreign legion) can also be fitted.
- ***Sunscreen*** - use sun protection factor (SPF) 25+ broad spectrum, water resistant sunscreen to cover all skin not covered by clothing. Zinc cream may be used on the lips and nose. Apply sunscreen on clean dry skin 15 minutes before you go outside, follow the instructions on the label and reapply every 2 hours (these items should be purchased as part of field supplies).

- **Eye protection** - where outdoor workers need protection from physical and chemical injury, tinted safety glasses that comply with Australian Standard AS 1337 Eye Protectors for Industrial Applications should be worn. Where health is the over-riding concern (eg protection from cataract formation) sunglasses designated as specific-purpose type B in Australian Standard AS 1067.1 Sunglasses and Fashion Spectacles - Part 1: Safety Requirements, may be worn.
- **Shade** - wherever possible, work in shaded areas. Vehicles can be fitted with shade canopies that are simple and quick to erect and provide shade when setting up worktables and equipment. Take rest breaks and lunch stops in shaded areas.
- **Work schedules** - if at all possible, reorganise outdoor work times to avoid the sun when it is most intense, between 10am and 2pm (11am to 3pm during daylight saving). This may not be practical for most field operations.
- **Weather Conditions** - If unsure about potential weather conditions in the area of intended activity, obtain a current weather forecast directly from the Bureau of Meteorology on their Internet web site: www.bom.gov.au/weather/

4.2. PROTECTION FROM ENVIRONMENTAL HAZARDS

Field staff/students work under many difficult situations. One of the hazards they will face on a daily basis is environmental hazards - climatic conditions that will differ greatly depending on the location and time of season. Although we can not avoid these hazards Safe work practices can be adopted to minimise the risk of injury or illness.

The Hazards of Heat

With many field operations being located in warm to very hot conditions, field staff constantly has to deal with the effects of heat in their normal course of duties. Unless appropriate precautions are taken, excessive heat stress can result in injury and even fatal illness. There are four main types of heat related illness: heat cramps, heat exhaustion, heat stroke and heat rash (or prickly heat).

Heat related hazards.

Heat Discomfort

Probably the mildest heat associated health hazard, it happens when an individual's natural cooling system, which is dependant upon the evaporation of sweat to dissipate the heat accumulated in our bodies, is unable to function effectively. While not suffering from stress at this point, if staff/students are unable to alleviate the discomfort, the resulting sense of oppression, distraction and irritation can cause accidents.

Treatment:

Staff feeling the effects of heat discomfort should advise their workmates that they are not feeling well and take a break. Try and find a shady area with a breeze and allow your skin to breathe by removing as many items of clothing as possible, including hard hats, shoes and socks. When working in a hot environment, it is important to drink as much water as possible to replace fluid lost through sweating. If you are thirsty the dehydration has begun. Replace fluids at regular intervals to avoid dehydration.

Heat Rash

Associated with heat discomfort, heat rash is otherwise known as prickly heat. This usually occurs in tropical or humid environments and results when sweat glands get plugged up. The uncomfortable outcome is a red bumpy rash with severe itching - usually appearing on the parts of the body covered by clothing - or where friction occurs.

Treatment:

To alleviate heat rash, first rinse the affected areas with cool water, change into dry clothes and move to a cool environment. You can prevent heat rash by keeping your skin clean and dry. It is important to ensure sweat evaporation is not restricted.

Heat Cramps

Heat cramps are more serious and result from salt deficiency due to heavy sweating. Symptoms include painful cramps in the arms, legs or stomach, which can occur during the day or later when back at camp. Cramps should be taken seriously, as they can be a precursor for more dangerous heat induced illness.

Treatment:

Move to a cool area, loosen clothing and drink cool water (either a teaspoon of glucose/sugar or an electrolyte replacement formula in a glass of water may also help). Commercial fluid replacement liquids, such as sports drinks may also be effective. Gentle stretching of the cramped muscles may also relieve the spasm.

Heat Exhaustion

Also known as heat strain, heat exhaustion signals a failure of the body's natural cooling mechanism, usually due from inadequate salt and water intake. Most at risk are unfit and unacclimatised individuals, as well as those on medication. Symptoms include feeling hot, exhausted with a weak and rapid pulse, normal to low blood pressure, tiredness, weakness, clumsiness or confusion, heavy sweating, cool and wet skin, rapid breathing or panting, blurred vision, extreme thirst, fainting and/or vomiting, cramps in muscles and stomach and a persistent headache.

Treatment:

In the short term, loosen or remove excess clothing, lay the person down and provide cool water (as above). If vomiting occurs, discontinue fluids. Either fan the victim or expose them to a breeze and spray them with cool water or apply cools, wet cloths. It is vital to seek medical aid when treating heat exhaustion. It is a serious condition and can lead to heat stroke, which is potentially fatal.

Heat Stroke

Body temperature can rise fatally if a person has ignored all warning signs and completely used up their water and salt, thereby no longer sweating. Most at risk are people who are obese, people who are wearing heavy clothing, have consumed alcohol or have a history of cardiovascular problems. A victim of heatstroke is literally burning up on the inside.

They have an excessively high body temperature (over 41 degrees Celsius) and can display one or more of the following symptoms:

- *high body temperature of 40°C or more*
- *weakness and confusion*
- *dizziness or headaches*
- *the victim is visually upset or acting strangely -can be aggressive*
- *a fast pulse - pounding and rapid and which gradually weakens*
- *convulsions*
- *nausea and vomiting*
- *hot, dry, red skin*
- *collapse and coma*

Treatment:

In this situation, apply DRABC (Danger, Response, Airway, Breathing, and Circulation). Seek professional medical attention as a matter of urgency as heat stroke can kill a person quickly. While waiting for medical help, follow the same procedures for heat exhaustion, and soak the victims clothing in cold water (or cover the victim in cool towels) in an attempt to cool them as much as possible (be careful not to over-cool casualty). Apply cold packs or ice to areas of large blood vessels (neck, groin and armpits) to accelerate cooling. If you are transporting the victim to a medical facility, it is a good idea to keep windows down to allow for maximum airflow to allow the skin to cool. When casualty fully conscious give fluids.

Prevention of Heat Related Illness

The following preventative strategies are directed to all CRCLEME field staff who work in warm to hot climates:

- when planning field surveys, field staff, supervisors /students should recognise the **need for acclimatisation and fluid replacement**. Gradually increase work levels as staff acclimatise to the conditions;
- ensure cool drinking water is provided in camp and on site. Field workers should drink plenty of water to avoid dehydration. Sweating is one way your body cools itself. Since sweating results in water loss, the only way to replace the water is to drink more of it. Drink plenty of water before commencing duty and at least 250ml (7 cup) every 20 minutes while working in hot conditions;
- avoid alcohol and carbonated drinks, as these can cause cramps;
- wear protective clothing that is suitable for hot conditions. This includes a wide brimmed hat, work clothing that "breathes" and allows a free circulation of air to aid sweat evaporation. Light coloured, loose fitting clothing that does not leave the skin exposed is best;
- keep to shaded areas wherever possible and provide artificial shade if necessary (tarpaulins, screens etc);
- ensure all staff /students are provided with adequate training and instructions for working in such conditions; and,

- be aware of any signs your body may be giving to heat stress. Individual responses to heat may vary enormously. It is important to be aware of the heat tolerance of all workers in the field party and alter their work tasks or working methods accordingly.

4.3 PROTECTION FROM COLD

Hypothermia

A person does not have to be caught in a blizzard to suffer hypothermia -prolonged exposure to cold, even if the temperature is above freezing, can lead to hypothermia, especially if certain conditions exist that exacerbate the effects of cold. These include exhaustion, the taking of alcohol or certain drugs, wet or damp clothes, and exposure to wind, illness or injury.

Hypothermia occurs when your core body temperature falls to a level where internal organs cease functioning effectively. As a result, your body loses heat faster than you can produce it. Hypothermia can develop quickly and it can be fatal.

Hypothermia is a progressive disorder. Mild hypothermia can be treated in the field, but severe hypothermia is life threatening and extremely difficult to treat in the field, which makes it vitally important to recognise the early symptoms so that hypothermia does not progress to a severe stage. Progressive symptoms include:

- *feeling chilled and numb*
- *loss of fine muscle performance and control, especially in your hands and feet*
- *a blue or grey pallor develops on your lips and fingertips uncontrollable shivering*
- *slurred speech, irrational behaviour, or the inability to walk or stand and apathy indicate moderate to severe hypothermia*
- *a slow, weak pulse that is very hard to measure indicates severe hypothermia.*
- *As the heart and lung control centres of the brain cease functioning, unconsciousness and death soon follow*

Treatment:

Take immediate action, including:

- *DRABC - monitor breathing and pulse very carefully;*
- *get the victim into some sort of shelter out of the elements - do not place them next to fire or heater but try to keep the area warm and dry;*
- *protect casualty and yourself from wind, rain, sleet, cold and wet ground;*
- *remove any wet clothes. Keep the victim warm by whatever means available - place the person in a dry sleeping bag or bath at 37 degrees Celsius and raise slowly to 40 degrees Celsius;*
- *give warm drinks (without caffeine or alcohol) to a victim who is conscious and not shivering;*
- *always handle the victim gently. Do not rub the skin or make the victim perform vigorous exercise; rough handling can cause cardiac problems;*
- *seek medical attention as soon as possible - do not leave casualty unattended.*

Prevention

- *protective clothing - dress appropriately for the conditions and carry spare clothing while on field duty or traversing. Wool clothing is recommended in cold conditions as it retains 80% of its insulating qualities even when wet. Always carry wet weather gear and wear appropriate foot and headgear at all times.*
- *try to maintain a comfortable body temperature*
- *take appropriate rest breaks to avoid fatigue*
- *keep protein level up by regular snacks of high-energy foods*
- *be alert for symptoms in yourself or other workers*
- *beware of wind chill factors.*

Frostbite

Field staff/students may find themselves working in extreme conditions where frostbite may be a threat. Frostbite occurs when your body tissue actually freezes, usually on the extremities. The patches may prick at first becoming numb and waxy, mottled blue or grey-white. Eventually they become hard, swollen but painless, finally blistering or ulcerating, turning red or gangrenous.

Treatment

- *remove the casualty to a warm, dry place*
- *remove anything constricting the affected limb*
- *rewarm the affected area with body heat*
- *NEVER rub or massage frostbitten area*
- *NEVER apply snow or cold water*
- *NEVER rewarm with direct heat*
- *give no alcohol*
- *cover any blisters with a dry sterile dressing*
- *seek medical aid;*
- *remove any jewellery*

Thaw frozen part as follows:

- *fill a container, large enough to hold entire frozen body part, with warm water (approx 40°C);*
- *put the injured part in the warm water and keep adding water to maintain constant temperature.*
- *keep the body part in the water until it is pink or does not improve anymore - this takes up to 40 minutes and may be painful;*
 - *keep the part elevated and warn do not break any blisters.*

Prevention

- *wear appropriate protective clothing to keep warm and dry;*
- *never touch metal that has been exposed to the elements with bare skin or allow skin to come in contact with petrol;*
- *keep blood circulating by moving the face, hands and feet; and,*
- *at first sign of waxy skin, begin first aid treatment and seek medical advice.*

4.4 NATURAL HAZARDS

Because field staff works across all parts of the continent, staff risk exposure to a variety of natural hazards. The following information provides general advice on procedures when confronted by the threat of flood, bushfire, electrical storms and cyclones.

Floods

Floods occur almost every year in Australia. They can occur at any time and in any stream or river. Tropical cyclones, moist low-pressure systems, sudden heavy rainfall, cyclone surge, high tides, seismic sea waves, earthquakes and dam failures may cause them. Flash flooding is the most probable concern to field parties, especially in outback or remote localities, and staff should always be aware of the following:

- *If there is a danger of storms or flash floods do not camp in a dry stream bed.*
- *never drive in a dry stream bed unless there is an obvious route for escape from flash flooding;*
- *avoid valley bottoms after a heavy rainfall; and,*
- *always carry survival equipment.*

The following are some general rules that emergency authorities recommend during flood alerts:

- *heed the official warnings, alerts and advice*
- *be wary of gossip and rumours*

Upon a flood warning

- *listen to radio and television (~f available) for further warnings and instructions*
- *fill clean water containers*
- *move belongings above the estimated flood height*
- *ensure you have sufficient supplies in case you are cut-off from facilities*

On warning of local evacuation

- *when staying in commercial accommodation, switch off all appliances and power when leaving*
- *when infield camp, be ready to move at short notice - do not put personal safety at risk for sake of equipment*
- *take necessary emergency supplies and medical kit*
- *follow evacuation instructions*

During the flood

- *Don't drink floodwater*
- *Don't use telephone unless you need help or have to report an emergency*
- *Don't hinder operations by sightseeing*
- *Don't attempt to cross flooded waterways or crossings*

Bushfire

We don't need reminding how deadly and destructive bushfires can be in Australia. Every year property and, in many instances, lives are lost due to bushfires somewhere across the county. When working in rural, remote and forest regions you should always be aware of the threat of bushfires, especially when the following signs are prevalent:

- *drought or a prolonged stretch without rain has dried out bush or grasslands;*
- *day(s) of extreme heat and low humidity;*
- *strong winds;*
- *smell or sight of smoke, and/or,*
- *animals behaving unusually.*

Always be alert of the risk of fires and evacuate the area before the situation becomes too dangerous. If you are caught in any fire situation, remember these important procedures:

- i. Search for an area with the least possible combustible material*
- ii. Protect yourself from the radiant heat of the fire*
- iii. DO NOT PANIC. You must assess the situation with a clear mind.*

Shelter can be a building, a vehicle, a pond, or a stream. For shelter against radiant heat, you can cover yourself with dirt or sand; dig into a streambed; use a wheel rut, a blanket, or a log. Remember that radiant heat kills faster than flames.

- *With grass fires, the flames may only last a minute; they pass very quickly. It may be possible to protect yourself by back-burning an area before the fire reaches you. However, you must know how to do this procedure correctly to avoid increasing your problems.*
- *With forest fires, the flames last longer. Your chances of survival are reduced, but it is possible to do so with sufficient shelter.*
- *Find shelter in a building if possible. It usually takes more time for a building to catch fire than for the fire to pass – especially if you have had time to damp down the roofs and walls. Be very careful what you use for shelter.*
- *Do not drive into heavy smoke. Pull over to the side of the road, preferably an area with little vegetation as possible. If no other shelter is available, you are safer inside your vehicle than outside. Close windows and vents. Get down below the dashboard and protect your body from the radiant heat with a blanket, or even a floor mat. It is very unlikely that the fuel tank will explode.*
- *Use your communication equipment to alert emergency services of your location and situation and follow their advice.*

Electrical Storms

Always be aware of the weather if you work in an area where electrical storms occur. Although direct lightning hits are rare, they do pose a risk and you can be severely injured by splash lightning or ground currents that spread out after lightning strikes a building or tree.

When a storm with potential lightning approaches:

- *immediately disconnect the camp radio antennas. Move them away from the radio, and ground them. If the antenna is struck by lightning, the charge will travel through the wire into the radio causing damage and possibly starting a fire; and*
- *seek shelter inside a building if possible. Stay away from open doors and windows. Avoid contact with anything metal or electrical, as lightning can travel into buildings – electrical outlets, plug-in appliances, radiators and open fire places all offer easy paths for lightning. Seek shelter in your vehicle if suitable shelter is unavailable.*

If you are caught outside when lightning strikes in the vicinity:

- *it is vitally important that you assume a position that minimises your contact with the ground (the safest position is to crouch down with feet close together and minimise the contact with the ground - crouch on some form of insulating material if possible)*
- *if there are several people in your party, spread out so that your group does not provide multiple paths for the current*
- *seek the safest location - go to a lower elevation if you are on a ridge or peak. Avoid standing under isolated tall trees or open spaces where you are the tallest object. If you are in a heavily timbered area, seek a stand of young trees for shelter. Avoid metal objects such as power lines and iron formations.*

Note: if someone is struck by lightning, commence DRABC. You cannot receive an electrical shock from someone who has been struck by lightning.

Cyclones

Cyclones occur mainly in the tropical areas of Australia between the months of November and April. Although land based survey carried out by CRCLEME in this region is usually conducted outside of the "wet season" or danger period, there may be occasions where field staff/students find themselves in a cyclone alert situation, and the following steps should be followed:

- *do not ignore warnings. Listen to radio reports and follow instructions from official authorities;*
- *field camp and survey activities should discontinue and be moved to a region safe from the force & flooding produced by a cyclone;*

- *seek appropriate protection - most towns and cities have emergency centres. if caught in outback areas, seek protection in the most solid building available in that area and advise authorities of location;*
- *have emergency supplies of fresh water, food rations, first aid kit and extra batteries for radio contact;*
- *remain inside during storms. Do not go outdoors until you hear official word that the storm has passed. The eye of the storm may give you an illusion of safety; and,*
- *listen to official information frequently.*

4.5 WILDLIFE

Dangerous Snakes

Australia has some of the most poisonous snakes in the world, and given the nature of our fieldwork, the risk of snakebite is a real threat. A knowledge and awareness of where the more dangerous snakes are most commonly found is useful for all field staff /students. The table below provides a summary of where these snakes are most commonly found - you may come across these snakes in other areas and it is important that you become aware of their characteristics (ACT included in NSW list).

Snake Type	NSW	Vic	SA	WA	Qld	NT	Tas	Comments (specific regions)
Copperhead	X	X					X	NSW east
Black Tiger				X			X	
Mainland Tiger	X	X			X			Qld south
Common/ Eastern Brown	X	X	X	X	X	X		WA north SA north
Gwadar or Western Brown	X	X	X	X	X	X		Vic north
Mulga or King Brown	X		X	X	X	X		
Speckled Brown					X	X		
Red-bellied black	X	X	X		X			Qld east SA south-east
Spotted Black or Blue- bellied Black	X				X			NSW north Qld south
Small-scaled or Fierce Snake	X		X		X	X		SA/NSW/Qld/NT border(s) region
Rough-scaled or / Clarence River Snake	X				X			NSW far-east QLD far-east
Eastern Small- eyed Snake	X	X			X			NSW east Vic east
Broad Headed	X							NSW east
Stephen's Banded Snake	X				X			NSW east QLD east
Pale Headed	X				X			NSW east QLD east
Death Adder	X		X	X	X	X		
Taipan	X			X	X	X		NSW far north-east Qld north and east NT north WA far north
Collett's Snake					X			

How to Avoid Snakebite

It is commonly accepted that the best way to avoid snakebite is to avoid situations where a snake may strike you. If you come across a snake, they should be left alone. Most bites occur when people fail to use common sense. In areas where poisonous snakes are found, follow these rules to help avoid snakebite:

- *learn the habits and the favoured habitat of poisonous snakes found in your field area;*
- *when walking in areas known to contain poisonous snakes, always wear sturdy loose fitting trousers over boots and socks. Boots should cover your ankles. Gaiters worn over boots on lower leg are also recommended. Australia has some of the most venomous snakes in the World. Venom from these snakes flows down and around the fangs to enter the victim rather than being injected through the fangs. Therefore, proper clothing can greatly reduce the severity of snakebites by absorbing the venom or deflecting the fangs;*
- *do not try to kill snakes unnecessarily (they are a protected species). Do not handle or disturb them, even if they appear dead or if you think they are harmless. Many bites result from "dead" snakes and from mistakenly identified venomous snakes;*
- *most snakes will retreat to avoid an encounter if they sense you are in the area. Therefore, walking heavily may drive snakes away as they respond to the vibrations. However, King Browns and Tiger Snakes will sometimes stand their ground;*
- *some snakes become very aggressive at certain times of the year - know when this occurs and make every effort to avoid snakes at these times;*
- *always roll over stones and logs with your rock hammer or a long stick, not with your hand or foot. Roll them towards yourself to keep the object between you and a snake. It is very dangerous to reach into a hole with your hand or stick. Look carefully (from a safe distance) before reaching into any crack, crevice or hollow log - use extra caution if you climb rocks;*
- *use extra caution and wear gloves when you collect firewood – do not collect firewood at night;*
- *step up onto logs and boulders rather than stepping over them. Then you can check that there are no snakes where you will step; and,*
- *keep tents tightly closed so that no snakes can crawl inside - - this also applies to the doors of your field vehicle(s). If using swags, roll them up each morning after use; - do not leave them laying open on the ground. There have been instances in Australia where people have been bitten by a snake that has crawled into a sleeping bag or bedroll.*

Treatment of Snakebite

Reference should be made to the 'Staying Alive First Aid with St John Ambulance' handbook, Bites and Stings section (page 4648; 59-61). If venomous snakebite occurs, or suspected, it is very important that the victim receive correct medical treatment as soon as possible. If someone in your party is bitten, the following procedures are recommended:

- *ensure the immediate area is safe. Don't try to kill the snake ~f it is still in the area (you will be putting yourself at risk of snakebite) but try to make an identification of the type of snake that has bitten the casualty. If the snake has already been killed, take it with you for identification so appropriate antivenene can be administered;*
- *don't underestimate the seriousness of a snakebite merely because the victim is not experiencing any symptoms or showing any outward signs of distress. Often there are no indications that the victim is in trouble until anything up to 15 minutes later (sometimes up to 2 hours);*
- *the casualty must rest (sudden movements will increase heart rate and blood circulation, spreading the venom at a faster rate);*
- *apply a pressure immobilisation bandage over the bitten area and around the limb, using a crepe or conforming bandage about 15cm wide. If unavailable, use substitute material.*

The bandage is applied as follows:

- *do not wash venom off;*
- *if bite is on trunk or neck apply pressure and rest casualty;*
- *apply the bandage firmly enough to compress tissue, but not so firmly as to restrict the flow of blood to the limb below the bandage;*
- *bandage starting from the fingers or toes, and upwards as far as can be reached up the limb;*
- *bandage as much of the limb as possible;*
- *apply a splint to the bandaged limb with a second bandage. If the bite is on the arm, immobilise the arm;*
- *do not remove the splint or bandage, once applied; and*
- *mark the area on the bandage where the bite is located with the time that the snakebite occurred. This is so the medical personnel can cut around the site of the bite to test for antivenene without disturbing the pressure immobility action bandage.*
- *if you are unable to get medical assistance to the casualty, then transport the casualty ,if at all possible, in a resting position rather than have them walk and take them to the nearest medical aid;*
- *if the casualty lapses into unconsciousness then DRABC.*
- *if in a remote area, follow emergency communication procedures for contacting the Royal Flying Doctor Service and wait for advice and direction,*

4.6 DANGEROUS SPIDERS

Australia has two deadly spiders, the red-back and the funnel-web. There are also spiders that give painful stings, and although not lethal, can make you very weak and sick. The following provides a brief description of the more harmful spiders that you may come across:

Red-back

- Red-backs are common throughout Australia and are normally found in the shade in an area where air currents will carry flies, slaters or beetles into its ragged web. Common haunts for red-backs are sheds, rubbish dumps, old tins and under bushes.
- The female is about three times as big as the harmless male. It has a satin-black body, long slender legs, and a broad longitudinal stripe on its abdomen. This strip is normally a brilliant red, but may be pink, orange or even off-white.
- The red-back is not aggressive, and bites are usually accidental or occur when the spider becomes caught next to someone's skin.
- The bite may cause a sharp sting or may not be felt at all. The effects of a bite are distinctive; after the initial sting or bite, redness and swelling may develop at the site of the bite accompanied with a localised burning pain and sweat inc which gradually increases and becomes generalised. Shivering and muscular weakness may develop, with nausea, dizziness and sometimes faintness present.
- A red-back bite rarely kills an adult but may be lethal to children and medical assistance should be sought. First aid for a red-back bite is a simple procedure of
 - i. *rest and reassure the casualty*
 - ii. *apply a cold compress over the bitten area*

Funnel-web

- The most dangerous spider found in Australia, the funnel-web bite can be deadly, particularly if the person bitten is young, elderly or in ill-health. It is hairy brown or black and grows between 2-3 cm. This spider is aggressive and will attack if disturbed.
- The most dangerous funnel-web is most commonly found in the Sydney and its surrounding coastal region, other types of funnel-web have also been found in central and northern coastal areas of NSW and Southeast Queensland. It may be discovered:
 - *in rock crevices*
 - *in small holes in the ground*
 - *underneath houses or structures*
 - *in trees and shrubs*
 - *cool moist environment*

- *Bites can produce sharp pain at bite site, nausea, vomiting and abdominal pain, sweating, muscle weakness, respiratory failure, and death. Both male and female funnel-webs can cause death, but the male is recognised as the most potent and is more frequently encountered, particularly during mating season as it tends to roam widely during this period.*
- *If bitten by what you think is a funnel-web, try to keep the spider (dead or alive) for identification for antivenene.*

First aid treatment includes:

- *rest and reassure the casualty, ensure the casualty does not move;*
- *apply a pressure immobilisation bandage over the bitten area from the toes or fingers up the limb as can be reached and splint bandaged limb;*
- *get urgent medical aid*

Other spiders that can cause painful bites and medical complications include:

Black House Spiders: grow to 1.5 cm and are grey or faded rusty black. Symptoms of bite include sweating, weakness and vomiting and medical assistance should be sought.

Fiddleback Spiders: small brown spiders that are found in areas around Adelaide and South Australia. There have been no recorded deaths from a Fiddleback but their bite can make a person very ill - medical assistance should be sought if bitten.

Mouse Spiders: an aggressive spider that is widespread throughout Australia. The male has a distinctive red head and fangs, the female (which is more dangerous) is a plain black heavy spider and her venom is extremely poisonous. The spider is a type of trapdoor spider and its burrows run vertically into the ground and are lined with silk and sealed with two oval doors. There is no particular first aid and medical assistance should be sought if bitten.

Wolf Spiders: there are many species found throughout Australia, most of them marked with grey and black or brown and black patterns and few grow beyond medium size - they are mostly found in garden type environments. Victims of its bite have suffered skin damage and even gangrene, as well as dangerous swellings and even kidney damage. Again, if the victim becomes ill, seek medical assistance urgently.

4.7 INSECTS

Mosquitoes and Flies

Mosquito and fly-borne diseases (Ross River Virus in particular) are of major concern for field workers. All efforts should be made to avoid bites from these insects and staff should be aware of any inoculations that are, or may become, available to prevent disease (refer to section 'Protection from Disease'). Field staff should:

- Carry and use appropriate insect repellent (it is useful to talk to local pharmacist or residents on the most effective product for use in the field area);
- Treat field clothing with insect repelling products
- Protect skin by wearing appropriate clothing (head nets may be useful), particularly when the insects are most prevalent

Bees, Wasps and Ants

Some people are allergic to stings from bees, wasps and red ants. Some allergic reactions can cause death from anaphylactic shock. Field staff who are known to have allergic reactions to any type of insect should carry medication (epipen) to be administered immediately upon being bitten and fellow field workers should be made aware of the situation.

Treatment

- *Bee sting:* remove sting and apply ice to sting area;
- *Wasp and ants:* apply ice to sting or bite;
- *If unconscious* (anaphylactic shock) then DRABC.

Ticks

Australian paralysis ticks infest country along the eastern edge of the continent. The poisonous saliva of ticks can cause serious allergies in certain people as well as paralysis that can sometimes be fatal. When working in areas where ticks are present, daily checks of skin, hair and clothing should be carried out for any signs - tick antitoxin is available and medical advice should be sought if ticks are found on the body.

Treatment

- *Kill tick with insect repellent, lighter fluid or methylated spirits;*
- *remove tick with tweezers and apply ice to site.*

4.8. CROCODILES

The threat of crocodile attack in the northern regions of Australia is an ever increasing risk given that crocodile numbers have expanded greatly since becoming a protected species in the early 1970's. There are two type of crocodiles that inhabit Australia's northern waters, freshwater crocodiles (*C. johnstoni*) and saltwater crocodiles (*C. porosus*).

Freshwater crocodiles inhabit all types of non-tidal freshwater wetlands of northern Australia. Although there are no reported cases of freshwater crocodiles killing humans, they will attack if threatened or protecting their nest and can cause a nasty superficial wound.

The saltwater crocodile is extremely dangerous, as they will prey on humans. Their preferred habitat is tidal rivers and mangrove swamps, however they are not confined to saltwater and have been known to swim up to 200 km upstream in freshwater river systems. Field staff /students should be wary of water systems following the wet-season, as vast areas of country can be flooded, allowing crocodiles to penetrate far inland and take up residence in apparently innocuous waterholes and in areas that may have previously been considered safe. Although crocodile attacks occur mainly in water, they can also attack on land and can move at surprising speed.

The following safety procedures are to be followed in crocodile inhabited areas:

- Be aware of the potential danger of crocodiles when working near water holes and riverbanks. Pay attention to any posted warnings at all times and check with local authorities before entering any water systems to undertake field work;
- Never swim in waters known to contain crocodiles;
- Do not camp near water holes, river banks, or any source of water where crocodiles may be present;
- Do not go to the same place each day for water or washing. Use a bucket attached to a rope to obtain water. Clean fish away from waters edge and dispose of remains safely. Do not approach or moor boats near animal carcasses as they may attract crocodiles to that area; and,
- Never hike at night, as crocodiles are known to travel between waterways during this time.

When undertaking fieldwork in water systems that are inhabited by saltwater crocodiles, liaise with local authorities before commencing fieldwork to obtain the most appropriate safety instructions.

4.9. FERAL ANIMALS

Feral water buffalo, cattle and feral pigs can endanger humans in rare circumstances and should be treated with respect. If you come across them, make sure you have somewhere safe to retreat to in case they charge or attack, especially if the animal has young. Feral pigs are scattered throughout Australia, especially in Queensland, New South Wales and Northern Territory. They can be infected with a variety of parasites, which can present a threat to humans.

SECTION 5 - COMMUNICATION

5.1. OUTLINE

Communication covers a range of issues that affect the way we work and effective communication is essential when considering safe working conditions for field staff /students. This policy covers areas such as the requirements for carrying communication equipment, emergency procedures, training, schedules and the importance of pre-trip planning.

Technology continues to advance rapidly and [identify correct title for responsible officer in your agency]and staff need to keep abreast of developments in the communication area. It is the responsibility of the [identify correct title for responsible officer in your agency] and project leader of each field operation to assess the communication needs of their group, taking into consideration such factors as remote locations, transportation, emergency contacts and schedules.

All staff and studnets going into the field is to have appropriate training in the use of the communication equipment to be used and an understanding of basic maintenance procedures. Staff /students are also responsible for keeping equipment in good working order and adhering to call-in schedules and contact arrangements.

Field Preparation

All field parties should have three levels of communication equipment. The three levels of equipment are:

- Primary:** *the main form of communication (eg. Telephone, satellite phones);*
- Secondary:** *alternative or back up form of communication (eg. HF Radio);*
- Emergency:** *when all else fails! (eg. Emergency Personal Indicator Radio Beacon's - (EPIRB's).*

The exact equipment chosen will vary depending on the size of the party, the destination of the party and other specific needs. The levels of communication equipment apply equally to all members of a field party as well as the field party as a whole.

The Project Leader is responsible for the selection of equipment for primary, secondary and emergency communication, reporting schedules and the emergency plan.

Equipment

When selecting communication equipment appropriate for your field parties needs, careful consideration of the **locality, terrain and transmission distance** that you will expect to encounter is required. The size of the field party will also have an influence, as you will need to have equipment to cover short-range communication between party members and longer range for base and emergency contacts. With technological advances happening at a fast rate, continual review of the market place and of providers is required.

It is the responsibility of each Project Leader to have their field vehicles fitted with the appropriate communication equipment to be used, including antenna's that are suitable for the frequencies that are to be utilised. All vehicles should be fitted with equipment for the required range of frequencies that can receive and send emergency calls.

All communication equipment is to be maintained in good working order and serviced regularly.

Equipment should be checked to ensure that it is in proper working order before each day's fieldwork. Back-up power sources should be available in case of failure. Where equipment is powered by battery, ensure all batteries are fully charged at the beginning of each day and battery chargers are carried. For surveys in remote areas, ensure all appropriate accessories and spares are carried.

All field staff /students should be aware of relevant State and Federal rules and regulations for the use of radio equipment and emergency channels/frequencies.

Work Practices

Having the right equipment is only one part of providing a safe working environment. Good work practices such as communication strategies and schedules, routine reporting procedures and implementation of appropriate emergency procedures are a vital part of a safe field operation.

Staff should also use their communication equipment (including am/fm/shortwave radios) to monitor local weather conditions and note any hazard alerts such as fire (bans), flood and cyclone warnings.

Reporting Schedules

These schedules relate specifically to reporting of the locations and status of field parties and their members. They outline minimum levels of reporting so that a high level of safety for field staff/studnets can be maintained and they are based on the premise that the general location and well-being of each member of a field party should be known at all times and at a frequency such that if an emergency arises the time before action starts is kept to a minimum.

Not only do the members of a field party need to know each other's whereabouts, but the Agency headquarters also needs to know the location of the field party. The Project Leader is responsible for promulgating the reporting schedules prior to the commencement of the survey.

Reporting to Headquarters

Where the field party's primary means of communication is in constant operation during working hours and is readily contactable by Headquarters, such as in a base camp, the minimum reporting frequency with headquarters should be weekly.

If the field party's primary means of communication is only operated intermittently and is not readily contactable by Headquarters, as is the case if the party has no base camp, daily reporting with headquarters is the minimum.

Reporting Within a Field Party

Where the members of a field party are working remotely from each other and may only get together occasionally, each member should report to the party leader twice daily (morning and evening).

There is no necessity for scheduled communication for individual members of a field party if they are working in the same vicinity and are returning to a base camp each night. If individual members of such a party were to leave the vicinity of the main party, such as for reconnaissance in another area or a stores run, an estimated time of return should be established with the party leader or a time scheduled to report their status to the party leader.

Reporting when Working Alone

In the context of this policy, the issue of whether staff should be required to work alone in the field is not addressed. This section recognises that there are and will be circumstances where staff work alone. It is not recommended that students work alone at any time. The reporting schedules and guidelines that are set out above are to be stringently followed and strict reporting procedures are to be developed before staff undertakes fieldwork.

The greatest danger to staff working alone is when survey work is undertaken away from their vehicle and communication equipment. This poses the threat of staff being stranded and unable to make contact if they have been injured. For this reason, *it is imperative* that daily reporting schedules and movement details are maintained either with headquarters or with local authorities, land owners or affiliated survey agencies if work is not being conducted through a base camp or other parties. This will enable search and rescue procedures to be promptly implemented in case of an emergency. In circumstances such as these, EPIRB's should be carried at all times. If it is possible to carry and use portable communication equipment, then these facilities are to be provided and utilised.

Training

All staff /students undertaking field work are to receive training, by an appropriate training provider, in the use of the communication facilities before undertaking field duty. The training must include:

- understanding of the basic use of equipment to transmit and receive messages;
- general maintenance and repair;
- emergency procedures (RFDS contact);
- use of call signs and different frequencies;
- use of EPIRB's.

All staff /students going into the field are to have appropriate training in the use of communications equipment to be used and an understanding of basic maintenance procedures. Staff is also responsible for keeping equipment in good working order and adhering to call in schedules and contact arrangements.

Communication must be provided between:

- groups/vehicles in the field and the main base camp;
- the main base camp and a nominated communications base;
- The main base camp and emergency services.
- Field personnel must make contact on a regular pre-arranged basis. Each
- members should report to the party leader twice daily (morning and afternoon).
- Each person in each group must be trained in the use of the communication
- equipment carried with the group.
- Training must be carried out before the field activity commences, which will provide a useful check as to the functioning of the equipment.

Training must include:

- understanding of the basic equipment to transmit and receive messages;
- general maintenance and repair;
- emergency procedures; use of call signs and different frequencies.

Any changes to the schedule and itinerary should be notified to the relevant team leader/supervisor or [identify correct title for responsible officer in your agency] for the field trip.

Emergency Procedures

One of the key features which affects the degree of hazard or risk involved in working alone or in remote localities the ease of communication, or the ability to summon help in emergency situations. Communications not only refer to the use of specific equipment but also the protocols in place to ensure that staff working either alone or in remote localities have regular planned contact with other staff as a check against accident or mishap.

Communication covers a range of issues that affect the way we work and effective communication is essential when considering safe working conditions for field staff. Technology continues to advance rapidly and [identify correct title for responsible officer in your agency] and staff need to keep abreast of developments in the communication areas. It is the responsibility of the [identify correct title for responsible officer in your agency] and project leader of each field operation to assess the communication needs of their group, taking into consideration such factors as remote locations, transportation, emergency contacts and schedules.

Emergency procedures must be developed for each field activity to be followed in the event of an emergency such as an injury, a deleterious change in the weather, a natural disaster such as a bushfire, etc. All staff is to be aware of the procedures and copies of the operating instructions and emergency frequencies should be posted at each communication base and in each vehicle.

The first stage in developing an emergency plan is to prepare an emergency call list for each base camp and at each communication base, with the list attached to each radio/phone or placed in a position where it is within clear eye contact of the radio/phone.

The call list should include:

- emergency protocols for personnel in the field, at the base camp and at the workplace;
- emergency frequencies for the survey area;
- numbers (and location) to call for medical help, including nearest doctor, hospital or medical centre, ambulance service or RFDS;
- police and local search and rescue organisation;
- nearest airstrip in case of emergency evacuation;
- any other local authority or service that is relevant to the survey;
- contact officer at headquarters (Canberra) for reporting emergency.

The second stage is to have step-by-step procedures in place for when a staff member does not report to base within the prescribed reporting schedule and/or a medical emergency is reported. This should include:

- attempt to contact missing person through normal communication channels;
- alerting other field workers in the vicinity (they may be able to investigate without placing themselves at risk);
- immediately advising local authorities of the situation and respond to their advice or instructions;
- if local authorities implement SAR procedures, advise contact officer at headquarters with details;
- keep emergency channels open - have a suitable person attending to communication equipment at all time;
- never place other staff at risk.

Your communication equipment is a vital component of fieldwork and could save your life in the case of emergencies.

In Case of No Message Received (NMR)

Procedures to follow in case of no message received

- If a call is missed leave for no more than 30 minutes before escalation to a low level.
- Call any local person with whom the field party may have been in contact, they may have more recent information or may have received a call because some difficulties may have been encountered in getting through to you. If the message is satisfactory the next scheduled call can be safely awaited.
- If no contact has been made review the itinerary and make all reasonable attempts to get in contact.
- If no contact advise management, group leader, safety officer.
- Leave for not more than two hours and then escalate to next or intermediate level

Review the Journey Form and all recent communicants for information then:

- *notify police, graziers etc in area*
- *Notify mining exploration staff in area*
- *start planning search using all available resources*
- *Brief next of kin.*

If no contact for 12 hours escalate to next highest level

- *Initiate and manger search*
- *Notify CEO, LEME*
- *Keep next of kin informed*
- *Keep management informed*

When field party found

- *initiate recovery*
- *inform next of kin*
- *inform management*
- *inform and thank all search parties*
- *carry out debrief meeting, gathering learning points*
- *incident report within 48 hours of outcome.*

Royal Flying Doctor Service of Australia - Contact Information & Procedures

Important Note:

As part of your communications preparation for field surveys, all HF transceivers should be checked by an expert or trainer to ensure that the RFDS channels and emergency transmit facilities are programmed and operating correctly. **NB.**

Channels have to be pre-programmed to provide the frequencies shown below.

If a field party in a remote location requires medical assistance, the most appropriate response is to call the RFDS. The RFDS claim that a doctor can attend a casualty within 90 minutes anywhere in Australia.

The RFDS operates a network of radio base control stations around Australia. Duty officers are on call 24 hours every day to receive calls either via telephone or HF radio. The locations, telephone numbers, call signs, channel numbers, and operating frequencies for all stations are listed below.

Royal Flying Doctor Service - Contact Information

CALL SIGN	TELEPHONE	FREQUENCIES (Khz)/CHANNELS				
Australia Wide		2020 khz				
Alice Springs	VJD (08) 8952 1033	5410	121	6950	133	
Broken Hill	VJC (08) 8088 0777	4055	109	6920	133	
Cairns	VJN (07) 4053 1952	5145	117	7465	139	
Carnarvon	VJT (08) 9941 1758	4045	108	6890	129	
Charleville	VJT (07) 4654 1233	4980	114	6845	127	
Derby	VJB (08) 9191 1612	5300	119	6945	132	
Jandakot	6PY (08) 9417 6364*	4030	107	7517	-	
Kalgoorlie	VJO (08) 9021 2211	5360	120	6825	125	
Mt Isa	VJI (07) 4743 2800	5110	116	6965	135	
Meekatharra	VKJ (08) 9981 1107	4010	106	6880	128	
Port Augusta	VNZ (08) 8642 2044	4010	106	6890	129	
Port Hedland	VKL (08) 9173 1386	4030	107	6960	134	

*1800 625 800 can be used for all Western Australia locations.

5.2 RADIO NOTES AND PROCEDURES

All aspects of good communications are a fifty-fifty arrangement between the Outpost and Control Station and one cannot be effective without the other. Time lost unnecessarily concerns all stations and the following points may be helpful in improving your operating technique.

1. Make sure your signal is constantly good; regular checks on your aerial system, battery and leads will pay dividends. The base will check your signal for strength and quality.
2. Be punctual, especially at Radio Clinics, as the Doctor often has other commitments following these Clinics.
3. Give your call sign and name your station clearly.
4. Have your message written out and be ready to proceed when you are called - the latter is important if there is a long traffic list.
5. If you are asked to repeat certain words, repeat those words only.
6. Spell unusual names and words, but not simple everyday words. Also words and names that have two or more different spellings, eg. read, reid, reed; check, cheque.
7. Use phonetics only where necessary. Remember in heavy static that spelling words at ordinary speed several times is often less confusing than the use of phonetics which is most often lost in the interference.
8. Listen carefully when the Control Operator repeats back your message. If you have the slightest doubt query it. It is your responsibility if you "O.K." an incorrect "read back".
9. The Control Operator should not be requested to condone breaking of regulations or be given unfair requests.

PHONETIC ALPHABET

Syllables in capitals are emphasised when speaking.

Letter	Code Word	Spoken As	Number	Spoken As
A	Alpha	AL fah	1	WUN
B	Bravo	BRAH voh	2	TOO
C	Charlie	CHAR lee	3	THUH REE
D	Delta	DELL tah	4	FO-WER
E	Echo	ECK oh	5	FI-YIV
F	Foxtrot	FOKS trot	6	SIX
G	Golf	GOLF	7	SEVEN
H	Hotel	ho TEL	8	AIT
I	India	IN dee ah	9	NINER
J	Juliet	JEW lee ETT	0	ZERO
K	Kilo	KEY loh		
L	Lima	Lee mah		
M	Mike	MIKE		
N	November	no VEM ber		
O	Oscar	OSS cah		
P	Papa	Pah PAH		
Q	Quebec	keh BECK		
R	Romeo	ROW me oh		
S	Sierra	see AIR rah		
T	Tango	TANG go		
U	Uniform	YOU nee form <i>or</i> OO ne form		
V	Victor	VIC tah		
W	Whiskey	WISS key		
X	X-ray	ECKS ray		
Y	Yankee	YANG key		
Z	ZULU	ZOO loo		

5.3. SEARCH AND RESCUE SIGNALS

Where staff is stranded and is not able to use their communication equipment, there is a number of signalling systems that are understood internationally. You can use anything at your disposal to attract attention. Recognised distress signals include three shots, three shouts, three fires or smoke columns in a row, and three flashes of a torch or mirror.

The following codes can be used to set up permanent signals on the ground for aircraft.

Ground - air visual code for use by survivors

⚠	require doctor serious injuries
⚠ ⚠	require medical supplies
5	unable to proceed
F	require food and water
K	indicate direction to proceed
↑	am proceeding in this direction
△	probably safe to land here
L	require fuel and oil
LL	all well
N	no
Y	yes
JL	not understood

If in doubt, use international symbol S O S

Useful Contact Numbers

Royal Flying Doctor Service (RFDS)

Frequencies and times of operation are subject to change without notice. The primary radio frequency of each station is shown in **BOLD** print.

Base	Organisation	Telephone	HF Frequencies
VJY Darwin	St Johns Ambulance Service	08 8922 6262	2360, 4010, 6840, 7975
VJB Derby	RFDS Western	08 9414 1200	5300, 5360, *2792
VKL Port Hedland	RFDS Western	08 9414 1200	5300, 5360, *2280
VJT Carnarvon	RFDS Western	08 9414 1200	5300, 5360, *2280
VKJ Meekatharra	RFDS Western	08 9414 1200	5300, 5360, *2280
VJQ Kalgoorlie	RFDS Western	08 9414 1200	5300, 5360, *2792
VJD Alice Springs	RFDS Central	08 8952 5355	2020, 5410, 6950
VNZ Port Augusta	RFDS Central	08 8642 5555	2020, 4010, 6890, 8165
VJC Broken Hill	RFDS NSW	08 8080 1777	2020, 4055, 6920
VJN Charleville	RFDS Queensland	07 4654 1233	2020, 4980, 6845
VJI Mt Isa	RFDS Queensland	07 4743 2800	2020, 5110, 6965
VJN Cairns	RFDS Queensland	07 4053 1952	2020, 2260, 5145, 7465
VZX Firefly	Penta Comstat	02 6559 1888	call
Perth	Telstra Radphone Calls	1800 810 023	

* The 2 Mhz frequencies are primarily for night use.

Medical Resources

Poison Information Centre	13 11 26
Mount Isa Hospital	
Broken Hill Hospital	
Cobar Hospital	
Alice Springs Hospital	
Tennant Creek Hospital	
Kalgoorlie Hospital	

SECTION 6 - VEHICLES

6. VEHICLE SAFETY

Vehicle Standards / Inspections

Personnel are to ensure that the *Remote Areas Vehicle Pre-start Inspection* has been carried out on the vehicle prior to departure from site. Particular attention should be paid to section 5 of this checklist to ensure adequate water and fuel provision, and operational communication equipment.

It is often necessary to clean a vehicle upon return from remote area work and it is the responsibility of the driver to ensure this is done. If the vehicle has been in the bush for an extended period of time ensure that the vehicle is sent in for maintenance or repair upon returning from the field.

Use of Hired Vehicles

Distance often requires the field team to fly to a particular point and then hire a field vehicle. This can present some problems related to poor serviceability of the vehicle and inadequate field equipment. Flight baggage limitations make it impossible to bring all the required equipment.

However, there are some vehicle hire companies who can provide fully field-equipped vehicles and these are worth locating. If not, it is generally necessary to bring with you basic communication equipment (sat-phone and EPIRB), survival kit, tools, puncture repair materials and a simple First Aid kit. Insist that the vehicle be supplied with an *extra* spare tyre, high-lift jack, axe and shovel (check these items before departure) and buy locally and fill large plastic water bottles. It may be necessary to limit the field activities in view of this limited equipment.

Vehicle Maintenance

All field vehicles are to be properly maintained at all times. Information on service requirements should be obtained from the [identify correct title for responsible officer in your agency] prior to commencing field duty.

Once in the field, it is necessary for the operator to carry out standard daily checks on the vehicle to ensure it is in a safe mechanical condition. Daily checks include:

- ◆ *engine oil level;*
- ◆ *radiator coolant level;*
- ◆ *fuel level;*
- ◆ *tyre inflation suitable for the driving conditions expected and load being carried;*
- ◆ *windows are clean to enable clear vision from front, back and sides;*
- ◆ *side and rear-vision mirrors are properly adjusted; and,*
- ◆ *headlights, tail and brake lights, indicators, windscreen wipers and horn are all in working order.*

When a vehicle is operating in severe conditions, the following additional checks are required:

- ◆ clear grass, debris and insects from radiator and air conditioner condenser;
- ◆ remove any flammable material from around exhaust and under vehicle;
- ◆ check for oil leaks around running gear, engine and transmission;
- ◆ check brake lines and connections for damage;
- ◆ check battery connections are tight and free of corrosion;
- ◆ check battery acid levels;
- ◆ periodically check that wheel nuts are tight and studs are not bent; and,
- ◆ when operating in dusty conditions, check air filter regularly (daily if necessary).

Any vehicle defects identified during regular inspections are to be brought to the attention of the Field Trip Leader or field mechanic (if available) for their earliest attention. All queries relating to undertaking repairs or servicing of vehicles whilst in the field should be referred to the project leader.

Each vehicle operating in the field should carry a First Aid Kit,

6.2 DRIVER AWARENESS

Driver Competency

All personnel must be assessed as competent to drive a 4WD vehicle in various off road conditions. Appropriate driver training/assessment will be given as per the above procedure.

Driver Awareness and Training

In the context of field work, driver awareness relates to staff /students being provided with training tools and information to handle a range of situations safely field members use various forms of off-road and heavy duty vehicles and are often required to travel in remote and hazardous conditions. The range of experience differs greatly within the organisation, and the following training is recommended:

- (a) for Drivers with 10 or more years driving experience in off-road conditions or use of heavy vehicles:
 - ◆ attend accredited defensive driver training to sharpen skills and eliminate "bad habits"; and,
- (b) for drivers with less than 10 years driving experience:
 - ◆ attend accredited defensive driver training and 4wd courses;
 - ◆ be provided with personal instruction and demonstration in the safe use of winches and other recovery equipment.

It is important that you get to know the field vehicle(s) you will be using, particularly when the vehicle is different in handling and size to your private vehicle, or field vehicles that you have previously used. Read the owners manual that comes with the vehicle and become familiar with:

- ◆ its dimensions (length, width, height, ground clearance);
- ◆ the speed and power of high and low gear ratios;

- ◆ the centre of gravity and its roll over angles; and;
- ◆ its difference in steering, handling, suspension, drive train, foot and hand brakes.

Road conditions (sealed and unsealed) can vary with little notice. Adapt to the conditions by driving at a safe speed that allows optimum control of the vehicle. When uncertain of the conditions ahead, stop the vehicle, survey the situation and only continue when safe to proceed.

Make sure that you are in a comfortable driving position and regulate your speed to suit the visibility and surface conditions. You should get out of the vehicle and walk across any creek crossing and rocky area that looks difficult. Remember a damaged vehicle can cause an accident.

Anticipate steering wheel kickback when you drive over rough terrain. Keep your fingers and thumbs firmly placed on the outside of the steering wheel and your hands in the "ten to two" positions.

If you are working in desert areas expect sand. Carry a shovel and strong steel bat in the vehicle to anchor your winch in case there are not trees. (You can also bury a spare tyre to anchor your winch).

Bulldust can cause damage if sucked into engines or when it builds up around greasy engine components. Even more dangerous is the badly damaged road surface below the deceptively smooth dust. Drive slowly through bulldust patches to avoid raising the dust and damaging the undercarriage and choking the air filter.

Beware of slippery muddy conditions particularly during the rainy season. Tyre chains can help to provide traction.

Avoid parking in dry streambeds if there is any possibility of flash flooding.

Watch out for livestock and wildlife, particularly on bush roads and remote highways.

To avoid the possibility of starting a grass fire from hot engine parts avoid parking in tall dry grass. Regularly clear away dry grass and vegetation from sump and exhaust guards.

Check the underside of the vehicle at the end of each period of bush driving. When you reach the first stretch of graded road drive straight up and down slopes never drive horizontally across slopes.

GUIDELINES FOR SAFE DRIVING

Drive at a safe speed: Always reduce your Speed when you encounter adverse road conditions including heavy traffic, hazardous road surfaces (eg water, sand, oil, snow, potholes, ruts) bad weather and poor light or visibility.

Drive at a speed which will allow you to stop the vehicle safely after observing an unexpected danger.

Stationery vehicles and livestock are a major hazard when driving through a dust cloud. You should drive sufficiently slowly so that you can stop or drive around any obstacles.

Respect the 2-second rule for safe following distance. Under normal conditions allow the vehicle ahead of you to pass a fixed point two seconds before you pass that same point. Increase this following distance whenever you experience adverse weather conditions or when you tow a trailer.

Always be ready to yield to the right of way to another vehicle to avoid a collision.
Aggressive driving attitudes often cause accidents.

Anticipate possible problems by scanning well ahead and behind your vehicle. Once you identify a hazard take proper preventative action. Don't have a "wait and see" attitude.

Avoid driving at night. Reduced visibility while driving at night makes it difficult to see animals or pedestrians on the road. Try to minimise night driving whenever possible. **Note some sites have no night driving policy.**

Never drive for more than 9 hours a day. Take several breaks during this period. Once you begin to notice fatigue it has already reached an acute stage. Rotate drivers or pull off the road at a safe place to rest. For travel on the open road plan your journey to avoid night driving. You can reduce travel fatigue on a long trip by taking frequent short breaks. Have a driver reviver stop at least every two hours.

Be attentive. Keep your eyes moving so you don't develop a fixed stare.

Park your vehicle in a safe place when you stop by the side of the road. Park well off the road on a straight stretch away from curves hills and intersections.

Switch on your headlights in areas of poor visibility, (fog, smoke, rain, dust and twilight) your vehicle will be much easier to be seen by others.

Livestock, cattle, sheep and kangaroos are a particular hazard at dusk and may suddenly run into your path from the bush at the side of the road. Do not swerve to avoid them. You should brake in a straight line to avoid a roll over.

Dangers of Driver Fatigue

Driver fatigue, or tiredness, is not like any other road safety hazard. Unlike drunken driving or speeding, tiredness is not a crime - but it can be just as fatal. Although difficult to measure, fatigue is known to be a factor in up to one third of serious crashes and falling asleep at the wheel contributes to many hundreds of deaths and injuries on our roads every year (Fatigue: The Hidden Killer, Department of Transport, Federal Office of Road Safety).

Given the nature of field operations, driver fatigue is a real threat to driver safety. This is particularly pertinent when staff are required to travel long distances to reach their field destination. Fatigue is also a factor once field operations have commenced, particularly the return journey to field base/camp on completing arduous field duties.

The problem with fatigue is that drivers do not realise they are too tired to drive safely. You can feel fatigue coming on, but by trying to fight it you only reduce your concentration on driving. There is only one thing to do if feeling tired when driving - take a break immediately.

Fatigue control strategies recommended for all staff /students include:

- ensure drivers have sufficient sleep before commencing the day's journey;
- ensure drivers take regular rest breaks during the journey;
- wherever possible, frequently change drivers during the journey;
- journeys should be planned so that drivers are not required to travel excessive daily distances;
- the driver should adjust his seat to a comfortable driving position, enabling access to all controls without straining;
- rear vision mirrors should be adjusted to enable full rear vision without necessitating excessive head movements by the driver; and,
- if a driver suffers the onset of fatigue, stop and take a rest break, including a short walk or do some stretching exercises. Do not continue to drive until you are fully refreshed. If you are still suffering the symptoms of fatigue, stop at the nearest town or campsite and continue the journey next day.

Staff or student safety is not to be compromised - it is far better to arrive late than not at all.

Travel

The most dangerous aspect of fieldwork is the drive there and back.
(Accidents/breakdowns (hire cars)/Potential for criminal intervention)

When in transit by vehicle over substantial distances, reporting is required at the start of the journey preferably, at least daily while in transit, and on completion (essential). If fieldwork is proposed on the day of the return, a planned report before the start of the return journey will greatly narrow any subsequent search.

Common sense suggests a more rigorous system of reporting is needed when traveling large distances by car. (I.e., to and from field sites). It is strongly recommended that field parties report (phone) back to base after each 3-4 hours of driving (if possible). A call-in from each major town passed through would substantially narrow down a search area, considering that one could drive over 1000 km/day otherwise.

Off road use of vehicles

General safety points when travelling off road include:

- ◆ proceed slowly with caution as high grass and scrub can conceal a multitude of obstacles such as fallen logs, rock outcrops, holes, small creek washouts, ant hills and the like;
- ◆ if in doubt as to the safety of the way you have chosen, stop the vehicle and walk the path in front. If still uncertain, retreat and chose another route. Ten minutes of reconnaissance can prevent a lengthy recovery operation;
- ◆ drivers must be constantly alert when travelling on bush tracks and outback roads, as track condition and direction can alter suddenly, without any indication;
- ◆ when travelling on bush tracks or unsealed roads, adjust the vehicle speed to suit the conditions and also consider the safety comfort of passenger(s) onboard;
- ◆ when confronted with heavy vehicles or road trains coming in the opposite direction on single lane sealed roads or on unsealed roads, move over and stop to let vehicles past to avoid windscreen damage and lack of vision due -to dust; and,
- ◆ when travelling in convoy, the person in charge should lead the way and be responsible for setting a pace which ensures others do not get into difficulties. Distance between vehicles on unsealed roads should be at least a 5-second gap, and may be longer if visibility is poor due to dust.

Towing Trailers and Caravans

Vehicles handle differently when towing a load and this will affect the vehicles ability to pass, change lanes, corner, brake and accelerate. Driver error, excessive speed, and improper load management are the three main causes of vehicle-trailer accidents.

Safety procedures for towing include:

- ◆ ensure all electrical connections are in working order, including brake lights, indicators and parking lights;
- ◆ ensure the hitch being used suits the size and weight of your vehicle and trailer or caravan;
- ◆ all trailers must be equipped with safety chains and must be used at all times;
- ◆ drivers should practice manoeuvring a trailer or caravan before they begin field trip. Practice turning, stopping and backing up with the trailer or caravan;
- ◆ distribute the load in the trailer so that there is no excess weight on the tongue. Load the heaviest objects as low as possible to maintain a low centre of gravity. Secure the cargo thoroughly, both inside and outside, so that no shifting will occur. Never overload a trailer;
- ◆ ensure you have clear vision when you tow trailers and caravans and use extended rear-view mirrors if required;
- ◆ once in transit, do a full inspection of trailer hitch, safety chains, wheels, tires, lights, load distribution and load security at every stop; and,
- ◆ adjust speed limits to a safe level when towing. If your vehicle-trailer/combination starts swaying, it is generally due to excess speed and drivers should reduce speed immediately.

The regulations governing the mass of trailers and the speed at which they can be towed vary from State to State. Drivers must acquaint themselves with the regulations applicable in the States in which they are to tow trailers and caravans and should consult the [identify correct title for responsible officer in your agency] in this regard.

Drivers towing four-wheel 'dog' type trailers and caravans must hold a valid class 6 or heavy articulated licence. The regulations covering loads and speeds for heavy vehicles apply

Winches and tow Cables

- Stand clear of cables when winching or towing
- check the cable is in good condition before use
- Pull on the drum part of ht winch to the cable; unwind all but approximately 6 cable wraps.
- Always use gloves when handling steel tow cables or winch cables to avoid steel splinters.
- To assist the winch, have the bogged vehicle in low range first gear.
- Electrical winches will overheat and burn out if used for extended periods. When using a power winch use for short periods then allow the winch to cool down.
- Always have the engine running when the winch is in operation to prevent flattening the vehicle battery.
- Attach tow cables, winch cables and snatch straps to towing points not to tow bar.
- When winching is completed, clean the cable and wind back onto drum evenly,

6.3. OTHER RESPONSIBILITIES

Transporting Hazardous or Flammable Goods

The transporting of hazardous or flammable goods is strictly regulated. In most cases, drivers must hold permits to carry such loads, as well as a drivers licence appropriate to the class of vehicle in question. It is important that the vehicle to be used is properly prepared to carry hazardous materials. Staff is required by law to carry Material Safety Data Sheets (MSDS) for all hazardous materials carried into the field.

Use of Vehicles on Private Property and Aboriginal Land

The permission of the land owner must be granted before CRCLEME vehicles are driven on private property.

In all cases the permission of the Traditional Owners must be granted before personnel or vehicles are allowed access to Aboriginal lands.

Equipment and Supplies

Apart from equipment required to carry out the field task, a minimum of equipment is required for each individual and the team as a whole. What is required depends not only on the planned activities but also on any emergency situation that could arise.

Planning for and allocation of equipment can be done at a 'toolbox' meeting at the beginning of the day.

Fire extinguishers should be fitted to all field vehicles. Operators are to familiarise themselves with the location and operation of the units fitted to their vehicles. If a vehicle catches fire, under no circumstances is staff to place their personal safety at risk attempting to prevent equipment from being damaged.

The most important item is sufficient water. Individual requirements vary greatly with ambient temperature and the amount of activity. This may be as much as 9 litres per day per person. Sufficient water should be carried for the expected duration of the task, leaving enough for at least three days to cover an emergency. For further details see Appendix 6. Water and individual basic survival materials (Appendix 6) should be carried when going out of sight of the vehicle.

Accident Reporting

All accidents involving Commonwealth or University vehicles must be reported to the police in the State in which the accident occurred. The [identify correct title for responsible officer in your agency] should be notified of all accidents involving vehicles as soon as practicable. Insert Agency process here

The responsibilities of the driver and the procedures to follow if involved in an accident are summarised below

- ◆ ensure the safety of all personnel involved, provide first-aid and assistance to injured persons;
- ◆ ensure that vehicle(s) involved do not constitute a danger to the public or traffic. Position warnings were necessary or designate personnel to warn oncoming traffic;
- ◆ accidents involving injury or serious vehicle damage must be reported immediately, both to the Police and the [identify correct title of the responsible officer for your agency] - indicating whether medical assistance is required;
- ◆ obtain full details of other vehicles involved, including registration numbers, insurance companies and the name and address of the drivers and owners as well as driver's licence details. Note the name, rank and station of the Police Officer in attendance or to whom the accident was reported;
- ◆ the Driver's Report of Accident must be completed in full and forwarded to the [identify correct title of officer for your agency]. If possible, accompany the report with photographs of the vehicle(s) and the accident site;
- ◆ under no circumstances must the driver **of** the vehicle admit liability;
- ◆ should the other party to an accident require additional information or wish to lodge a claim, he/she should be given the address of the [identify correct title for responsible officer in your agency] will acknowledge the request and ensure that the correct procedures are followed.

6.4. SAFETY RULES AND REGULATIONS

All staff required to drive Commonwealth vehicles are to obey the following rules:

- ◆ all drivers must hold a current driver's licence relevant to the class of vehicle to be driven;
- ◆ all drivers are to abide by ALL road rules and ordinances of the State or Territory in which they are operating (speed limits, parking controls, axle load limits etc);
- ◆ safety belts must be worn by drivers and passengers. Unsatisfactory or unserviceable seat belts are to be reported to the Fleet [identify correct title for responsible officer in your agency]; and,
- ◆ under no circumstances are vehicles to be driven by a person under the influence of a drug or intoxicating liquor or having or exceeding the prescribed percentage or concentration of alcohol in the blood

Pre Trip Planning

When planning for a field survey, the following basic instructions are to be included to enhance the safe use of vehicles in the field:

- allow realistic and safe travel times for reaching destination, including appropriate rest breaks;
- consider the experience of staff undertaking the field survey and the type of driver training and awareness to be implemented (including use of winches, recovery gear, communication equipment etc) before departure;
- carefully consider the route to be taken and road conditions, and avoid unnecessary risks such as "short cuts" on dangerous or unsafe auxiliary roads;
- consult with the [*identify correct title for responsible officer in your agency*] on loading capacity for vehicles when transporting heavy/excessive equipment;
- consider the type of equipment that may be necessary to carry in case of breakdown, particularly when staff are working in remote localities. This will vary depending on the type of terrain and conditions that will be encountered and services available.
- consider the communication equipment suitable for the field work being undertaken and,
- if more than one vehicle is involved in the survey, wherever possible travel should be arranged to be undertaken in convoy within a reasonable distance from each vehicle (not army style) and vehicles should remain in contact in case assistance is required or staff find themselves in an emergency situation. Suitable rendezvous should also be arranged during the journey to ensure all vehicles remain in contact should a problem arise.

- Do not allow travel alone in remote areas.
- Complete the Remote Area Vehicle Inspection Checklist (*Attachment B*) during the planning stages to ensure all the correct equipment has been provided.
- The Daily Vehicle Checklist is to be filled out before journey prior to departure to ensure adequate provision etc. This checklist can be kept in the vehicle and used before each trip. (*Attachment C*)
- Information of the journey plan and the completed Field Communication information are to be maintained and a copy left with the main base.
- The Communication schedule and daily journey plan is to be produced on arrival back on site where the participants advise the relevant project leader of their return.

Completion of a Daily Journey Plan Log (*Attachment D*) will include the following information:

An accompanying map, showing all destinations and locations, relevant topography, exiting tracks etc.

It is mandatory that any intended changes to the route schedule outlines in the Daily Journey Plan Log must be communicated to the relevant team leader and organiser prior to undertaking any such changes.

It is the responsibility of any person travelling in the field to ascertain what type of Journey plan is necessary and follow the procedures accordingly.

To avoid becoming lost all personnel should take a map, a GPS and a compass with them when they go into the field.

Filling Fuel Tanks

The utmost care must be exercised when filling vehicles, to avoid spillage or the ingress of foreign matter into the tank. Carefully clean around the filler cap before removal. Vehicles must be Switched Off before filling commences & drivers are to ensure the filler cap is securely fastened after completion.

Petrol Storage & Carriage

Under no circumstances is petrol to be stored or carried in plastic containers which are not designated for fuel. Steel Jerry cans (JZC 011) are available for carrying small quantities of fuel. Law does not permit carriage of petrol within the passenger compartment.

Report on Mechanical Condition of Vehicle

At the end of a field season, a report on the general condition of each vehicle should be provided to the [*identify correct title for responsible officer in your agency*]. The report should include whether any repairs need to be carried out, how the vehicle handled, whether it was suitable for the type of field work carried out and whether there are any safety issues that need to be actioned.

SECTION 7 - PERSONAL PROTECTIVE EQUIPMENT (PPE)

7.1. TYPES OF PPE

It is mandatory that all field staff /students wear and use PPE in specified circumstances. The staff member in charge must ensure that all participants are aware of the possible neglect of the duty of care principle should they allow a person to take part in a field activity without safety equipment where the wearing of such equipment has been advised as essential.

[identify correct title for responsible officer in your agency] in charge of field projects must identify the items of PPE that may be required for each field party. Before the field activity commences essential safety equipment must be checked to ensure that it fits correctly.

The types of equipment that may be required are:

- **Safety vests** - brightly coloured vests with reflective surfaces. These should be worn in all situations when visibility is a safety issue (eg. anywhere near roads or traffic, moving machinery), regardless of ambient light conditions;
- **Hard hats** - should be worn as appropriate in situations where risk of head injury is present (eg. falling objects, low headroom);
- **Safety glasses or goggles** - must be worn whenever there is a risk of eye injury;
- **Hearing protection** - must be used whenever there is a risk of noise-related injury;
- **Respiratory protection** - must be used where necessary (eg. exhaust fumes in tunnels or droplet infection in sewers).
- **Protective clothing and footwear** (eg. wet weather coats, hats, sunscreen, hiking boots)

All safety equipment must be:

- of approved design (ie. meet Australian Standards as a minimum);
- of suitable quality for the conditions to be encountered in the field;
- inspected and maintained regularly;
- the staff member in charge of the field activity must ensure that all safety equipment has been inspected and undergone maintenance before commencing a field activity;
- training in the use of safety equipment must be given before the field activity commences.
- Items such as hats, sunglasses, sunscreens and insect repellents may be required in hot climates.

Selection, Use and Issue of PPE

This section is not exhaustive and there will be circumstances, which will not be covered. In these cases [identify correct title for responsible officer in your agency] or supervisors should use their own judgement in consultation with the involved employees, unions, Health and Safety Representatives and the Occupational Health and Safety Committee.

Items of PPE must have the relevant Australian Standard specification to ensure that a high level of performance is achieved. Where no Australian Standard exists, reference should be made to a relevant International Standard specification.

General Protective Clothing

Overalls should be provided and used in situations where there is a risk of permanent soiling. The style or construction of these items may need to be reviewed if the employee requires a lightweight overall due to climatic conditions.

Adequate cold weather clothing such as thermal underwear, coats and/or jackets must be provided and worn in situations where there is a risk of temperatures falling below 10 degrees Celsius.

Wet weather clothing such as rain jackets, hats and pants must be provided and worn for employees that are required to regularly work in wet conditions.

Foot Protection

Protective footwear must conform to Australian Standard AS 2210, *Occupational protective footwear*, and AS 2210.1, *Guide to selection, care and use*. Foot protection must meet specific standards in relation to the work performed. Examples include resistance to chemical contact and antistatic/ electrical conductive for explosive handlers.

Steel capped gumboots must be provided and worn where conditions are also wet slippery and/or muddy.

Steel capped safety boots must be provided and worn where there may be a likelihood of injuring the feet. Examples are:

- Working in workshops and storage sheds.
- Using hand tools such as picks, shovels, etc.
- Undertaking manual handling of heavy, awkward or dangerous items.
- Working at drill sites.
- Studying mines, outcrops and quarries.

Hand Protection

In general the level of protection needed will vary between tasks, therefore protective gloves need to be chosen accordingly.

Rubber type chemical resistant gloves must be provided and worn in situations that require the handling of any hazardous chemicals or substances. It is important to use the appropriate glove for the material that is to be handled. Australian Standard AS 2161, *Industrial safety gloves and mittens*, provides guidance and examples.

Leather type gloves must be provided and worn when the employee is engaged in manual handling of heavy, awkward or sharp objects and for activities requiring a firm grip.

Where gloves are worn, they must be regularly inspected and cleaned in accordance with manufacturers instructions. Many gloves that are water-resistant may cause excessive heat and sweat build up. In these cases cotton liners should be provided and changed frequently to avoid possible fungal infections.

Head Protection

Appropriate safety helmets and hard hats must be provided and worn in every situation where there is a risk of impact from a falling or fixed object, contact with live electrical wires and other parts, and exposure to sources of ignition and intense heat. Examples include:

- Working around drill sites.
- Inspecting or studying mines, quarries and overhead rock outcrops.
- Working in proximity to any overhead equipment/machinery.
- Working with or near explosives.

Where applicable, officers using motor bikes and other open off-road vehicles must be provided with and use a helmet that complies with Australian Standard AS 1698, *Protective helmets for vehicle use*.

Hard hats must comply with Australian Standard 1801, *Industrial safety helmets*.

Where required the following accessories must be made available and used for added protection (making sure that the accessory does not reduce the safety characteristic of the helmet):

- Lamp attachment.
- Eye shield, face shield or welding shield.
- A very wide brim for additional shade in hot climates.
- Neck flaps for protection against weather or chemical substances.
- Ear muffs.
- A liner for protection against cold climates.
- Elasticised chin strap.

Eye and Face Protection

Where it is not possible to eliminate or control hazards to the face or eye, protection must be provided and worn. Australian Standards AS 1337, *Eye protectors for industrial applications*, provides guidance in this area. Examples of situations that require face/eye protection are:

- Collecting samples using picks etc.
- Use and handling of hazardous chemicals and substances.
- Using machinery.
- Using hand tools such as picks, shovels etc.

Safety spectacles and prescription eye protectors are not intended to provide protection against medium or high impact energy. If greater protection is required it must be in the form of wide vision goggles, hood or face shield. The need for combined ultraviolet protection should not be overlooked.

Eye and face protection should be provided on the basis of the nature of risk to the face/eyes, working conditions, task requirements and the operator's eyesight and preference.

Prescription spectacles are not generally adequate for protection against flying objects. Employees with spectacles must be provided with and use coverall goggles. Suitable eye protector frames can be fitted with prescription lenses made from toughened glass or plastic. This option could be considered for employees with a long term and frequent requirement.

Respiratory Protection

Field staff /students must be provided with and use respirators in any situation where contaminants in a particulate or gaseous form exist. Respirators must comply with Australian Standard AS 1716, *Respiratory protective devices*.

A range of respirators and suitable cartridges must be made available to address any hazards that may exist.

It is essential that the likely contaminants, their toxicity and concentration are identified before any work commences.

To protect effectively, a respirator must be worn whenever the person is exposed to the contaminant. The respirator needs to be selected to suit the task, contaminant and operator. Australian Standard 1715, *Selection, use and maintenance of respiratory devices* provide guidance in this area.

In the case of particulate contamination a powered air-purifying respirator may decrease the load on the breathing process of the user. Examples of situations that require respiratory protection are:

- Working in extremely dusty conditions.
- Using and handling hazardous chemicals and substances.
- Crushing rock/earth samples.
- Working in a confined space.

Hearing Protection

Codes of practice exist that state that noise levels at the work place should not exceed an 8 hour average of 85 dB(A) (examples include some items of machinery and equipment eg. chainsaws) and a peak noise level of 140 DBE linear (blasts, shots etc.). Where engineering and administrative controls are unable to reduce noise levels below the exposure standard, hearing protection that complies with Australian standard 1270, *Acoustics - Hearing protectors*, must be provided and worn. Examples of situations that require hearing protection are:

- Working with mechanical tools (eg. chainsaws, drills).
- Working in a confined space with mechanical equipment.
- Working with or around mechanical machinery.

Hearing protection (earplugs or earmuffs) must protect the user from the identified noise hazard to meet the prescribed limits. Consideration should be given to the conditions that the user is working under, other PPE that they are required to use (eg. hard hat) and the physical comfort of the user. Australian Standard 126% *Acoustics - Hearing conservation*, provides guidance in this area.

7.2. ULTRAVIOLET (UV) LIGHT PROTECTION

As Australia has the highest incidence of skin cancer in the world CRCLEME field staff must be provided and use PPE that protects them from UV radiation.

The use of personal protection is an important component in solar UV radiation control. Personal protection includes hats, clothing, sunglasses and sunscreens.

It is preferable to first aim to use natural shade or avoid work in the sun when it is most intense, ie. 10: 00 am and 2: 00 PM (11: 00 and 3.00 PM daylight saving). The provision of portable shade/awnings should also be considered.

Clothing for UV protection

Light coloured cotton fabrics are preferable as they allow sweat evaporation and are usually more comfortable than synthetic fabrics. Lighter coloured fabrics also reflect heat. Long sleeve shirts with collars worn with long trousers are preferred. However, caution should be exercised to ensure that loose fitting garments do not constitute a safety hazard.

Hats for UV protection

Wide brim hats (at least 8 centimetres) must be provided and worn. Foreign Legion style caps, with loose flaps to protect the neck and ears, are also effective. Hats with wide brims will not protect against solar UV reflecting from shiny surfaces.

Where applicable, hard hats must be fitted with attachable broad brims and neck flaps. In the case of head protection, the safety function of the hat should take precedence over UV protection (sunscreens to be used instead).

Sunscreens for UV protection

Where required, a broad spectrum SPF 15+ sunscreen must be made available on a personal issue basis (water-resistant sunscreens may be required). Lip protection should be utilised, as lips do not contain melanin, which provides a natural protection. Sunscreen should be applied to clean dry skin 15 minutes before commencing outside duties, label instructions must be followed and sunscreens applied at least every two hours.

Sunscreen does not provide complete protection (SPF 15+ only filters out 94% of solar UV radiation). Therefore, hats, clothing and other protective measures must also be provided and used. There are people who may react adversely to some sunscreens and if this is the case, another sunscreen should be used.

Eye Protection (UV, sunglasses)

Where field staff /students need protection from physical and chemical injury, tinted safety glasses that comply with AS 1337, *Eye Protectors for Industrial Applications*, must be issued and worn. This Standard includes tinted and untinted protectors that afford UV protection. This is the preferred issue.

Examples for use of these glasses are:

- Collecting samples using picks etc.
- Using and handling hazardous chemicals and substances.
- Using machinery.
- Using hand tools such as picks, shovels etc.

Where protection from cataract formation or another health matter is a concern, sunglasses as specific purpose type (b) in Australian Standard AS 1067.1 *Sunglasses and Fashion Spectacles - Part 1: Safety Requirements*, must be issued and used. Full wrap around style glasses should be given preference.

7.3. OTHER PROTECTIVE EQUIPMENT

The issue and use of PPE should be examined in a case by case approach. The following is a list of additional items that may require consideration. These items must be provided and used as required.

Insect proof tents – for protection from virus- carrying insects and discomfort caused by insect bites.

Safety vests and lights – for use by staff that work at or near roadways.

Body armour – for protection against flying rock fragments while sampling, to be used in conjunction with appropriate face shield, gloves and boots.

Gaiters – for protection of lower legs while bush walking.

Wet suits and associated equipment - for any officer involved in water/ underwater work. Note- specific codes of practice exist for maritime practices and occupational diving.

SECTION 8 - CAMP SAFETY

8.1 FIELD CAMPS

Careful consideration should be given when planning and selecting camp sites and with the management of the campsite, particularly in the areas of safety and environmental concerns. Field camps should be provided with all the necessary facilities and equipment for the employees to work safely and efficiently in the field. The following directions are to be followed:

Selecting a Campsite

- Establish a camp as near to the field work-site as possible. This will reduce travel time and the exposure to dangers associated with transportation;
- Assess the dangers to natural hazards such as flooding, bushfire, rock or mud slides etc and plan the campsite with the attention to the requirement of emergency evacuation plans;
- Avoid camping close to tall or dead trees as they may fall or drop branches, especially during high winds. Sites should be reasonably level, with a few shade trees, but with a minimum of tree stumps and fallen timber. In the best sites it is possible to walk about the camp without watching where you put your feet.
- camps should not be placed among trees, which will shed branches, In forests the site should be in the open area as possible, so that it will be cooled by the prevailing winds. Any to gravelly ground is preferable to clay soils which will break up with traffic and become dusty in dry weather or muddy in rain,
- If necessary check with local pastoralist for a mutually agreed campsite.
- Do not camp in swampy areas or areas with poor drainage. This will reduce the number of insects and the risk of mosquito-borne disease such as Ross River virus.
- When working in crocodile inhabited country, camp at least 800 metres from waterways.

Setting up the Camp

- Arrange the camp to reduce the spread of fire. Locate tents, kitchen or mess area(s), fuel or dangerous substances area(s) with fire prevention in mind;
- Ensure first aid equipment is kept in a place that is easily accessible and that all staff are aware of its location;
- Ensure emergency communication equipment is accessible at all times and have emergency contact and evacuation procedures in the immediate vicinity to the communication equipment and in clear eye-sight (refer to FWP No 3, Field Communications);
- Ensure there is sufficient clean water supply for the camp;

- Latrines and showers should be located away from the kitchen area and with hand washing facilities between the latrine and camp to promote hygiene and also be located away from water courses so seepage and run-off cannot pollute waterways;
- Ensure there is appropriate vehicle access to the camp and around the perimeters; and,
- Ensure there is appropriate lighting at night, but keep leads and other obstacles at a minimum around designated vehicle and walkway access points.

8.2. GENERAL CAMP SAFETY ISSUES

Occupational injuries include those associated with cooking, ie burns, knife cuts and those caused by slipping, tripping, or by flood or bush fires.

A camp [*identify correct title for responsible officer in your agency*] should be appointed for any camp to control the operation of that camp.

- Ensure fire fighting equipment is located in an accessible area and all staff are trained in its use;
- If open fireplaces are being used within the camp, keep them small and locate them in a safe place away from hazardous and/or flammable substances. Never leave them unattended and ensure they are properly extinguished when no longer required. Pay particular attention to fire warnings and bans when working in hot, dry and windy climates;
- When using open fireplaces for cooking, ensure boiling water and fats are handled carefully and have appropriate cooking utensils and heat resistant gloves available.
- Ensure the risk of injury by boiling water or fats are kept to a minimum by keeping the area clean and tidy;
- Ensure all equipment such as axes, chain saws, tools etc are kept in a central location and not left lying around where they can cause harm;
- Give particular attention to environmental issues and ensure all waste and disposable items are handled and disposed of correctly; and,??? Missing words

Waste Disposal

- correct disposal of food scraps, cooking and showering water and human waste. For short term camps and only a few people, food scraps can be buried or burned and water allowed to drain away naturally. Empty cans and bottles should be placed in a garbage bag for disposal at nearest rubbish dump.
- Human waste should be buried away from the campsite.

Hygiene and Food Preparation

To prevent contamination of food always **wash your hands with soap and water** before handling any food, or after:

- *going to the toilet*
- *touching your hair, body or face, smoking*
- *blowing your nose, coughing or sneezing into your hands*
- *licking your fingers*
- *handling garbage, handling raw food, handling dry stores*
- *cleaning equipment*

Always keep food covered from dust, insects or other foreign matter. Use a clean cover, not a tea towel.

- *Do not re-use plastic or aluminium wrap to keep food covered.*
- *Always keep raw food separated from cooked food.*
- *Keep raw vegetables separated from meat.*
- *Always use separate cutting boards, knives for each type of food eg. meat, fish, vegetables, cooked and uncooked foods.*
- *Always clean as you go.*
- *After finishing one task, clean work surfaces before beginning next task.*

Time and Temperature Control

Bacteria need time to multiply to dangerous levels. In addition, they need to be left at temperatures between 5°C and 60°C to multiply. This is known as the Temperature Danger Zone. Food should never be left for any length of time in the Danger Zone. To prevent this:

- *Never leave food out at room temperature. Field workers should plan to carry food in cooled eskies, car fridges, and/or caravan fridges.*
- *Defrost frozen food in a fridge, cool room or in a microwave oven.*
- *When cooling hot food, place food in the fridge. Avoid using large containers to cool food because these take a long time. Smaller containers mean quicker cooling.*
- *When reheating food, ensure it is heated to above 60 °C as quickly as possible and held above 60 °C until served.*

Food Poisoning

Food poisoning bacteria originate from soil, poor quality water, or the bodies of some animals. Most foods are not normally contaminated with harmful bacteria unless the bacteria have got there through poor personal hygiene or bad food handling practices.

Treatment of Food Poisoning

- In the management of a case of food poisoning the biggest concern is dehydration from vomiting and diarrhoea. Ensure the casualty drinks enough water.
- Dehydration is serious. For this reason anyone with a case of food poisoning should be transported from the field to medical attention.

Generators at Field Camps

- All generators in field camps must have earth leakage trip switches.
- All those who need to use a generator need to have had the appropriate induction.
- All personnel staying in a field camp that uses a generator must be shown how to operate the generator, particularly any emergency kill switches.

Electrical Shock

- Any personnel working with field electrical equipment must have appropriate training to operate it. This includes any contractors brought on site at any time.
- Electrical items must be correctly tagged.

Liquid Petroleum Gas (LPG)

Precautions for using LPG include:

- ensuring all connections are tight check for gas leak. Using detergent and water mixture that will cause a bubble to form if there is a leaking connection can do this.
- Store gas bottles away from all naked flames and open fires.
- Don't keep gas bottles for the fridges in a confined space where gas can accumulate.
 - Gas is heavier than air and can displace oxygen in an enclosed area. This can cause explosion if ignited.
 - Return or safely dispose of any damaged gas bottles.

SECTION 9 - ELECTRICAL SAFETY

9.1. INTRODUCTION

Electricity is a commodity we use daily, in one form or another, in the workplace. It is therefore important to foster the safe, reliable supply and safe use of electricity by all staff involved with field operations. This part of the policy covers the safe use, inspection, repair, maintenance and testing of all electrical installations and electrical appliances used in outposted offices, workshops and field operations.

It is a requirement that staff /students throughout the CRC shall follow the procedures given in this policy.

Definitions

Electrical Work:	Electrical work includes all work done on the electrical installation and on electrical appliances.
Electrical installation	The electrical Installation is the electricity supply to a building/a campsite, and includes the main switchboard, distribution boards, and all fixed wiring to isolation switches or general purpose outlets.
Electrical Appliance	An electrical appliance is electricity consuming device or apparatus (including the cable) that is connected to or capable of being connected to the electrical installation.
An Approved Person	An approved person is a person approved to undertake explicit electrical work. The approval is given by the CRC in employing a person or in requesting a person to undertake a specific task. An approved person for the purposes of this policy shall be: <ul style="list-style-type: none">a) an A-grade licensed electrician approved to work on the electrical installation and electrical appliances,b) an electronic technician approved to work on electrical appliances connected to or capable of being connected to the electrical installation,c) a tradesperson holding a restricted electrical licence (air conditioning mechanic, plumber, mechanical fitter, electrical fitter) approved to work on restricted electrical appliances and their connection to the electrical installation according to the specific conditions of their licence.

Responsibility for electrical work

It is the responsibility of Property Services management to ensure that their contractors have appropriate qualifications, licences and experience for the nominated tasks.

- All changes to the electrical installation must be tested and approved by the Local Supply Authority.
- the acceptance testing, issue, maintenance, repairs and modifications of such appliances;
- the safety of such appliances, and its compliance with the rules and codes of the Local Supply Authority and Standards Australia;
- Inspection and testing of all electrical installation and appliances used in the field at intervals not longer than those did as stipulated in the attached schedule.

Approved Person

The approved person must have appropriate qualifications, licences and experience for the nominated tasks.

The approved person shall undertake work in such a manner as to ensure that personnel are not exposed to the least possible degree of danger.

It is the responsibility of the approved person to provide a marker label on each installation/equipment tested and to inform management of electrical hazards found in the area.

Responsibilities of Users of Electrical Appliances

Users must not interfere with the marker label on electrical appliances or with the tagging procedure used as a safety control by approved persons are not permitted to repair, modify or interfere with electrical appliances in any way..

Users are responsible for notifying their supervisor/project leader when the appliance is due for inspection/retest from the date shown on the marker label of an electrical appliance. Users are not to use an appliance if the due date for inspection/retest date has passed.

If a user becomes aware that an appliance or associated wiring may be in dangerous condition, the appliance should be switched off and unplugged (if possible) and the supervisor must be notified immediately. A notice should be placed on the appliance stating, for example:

Danger : Appliance out of order - Do not use - J Bloggs - 10 March 1997

Users must report ALL electric shocks to the supervisor/project leader and the safety officer so that remedial action can be taken.

Electrical portable outlet devices (power boards) are to be used only if they have overload protection. Homemade electrical portable outlet devices are illegal with Local Supply Authorities throughout Australia and shall not to be used in the field.

Users must follow this policy and General Safety Hints for Users of Electricity at all times.

Rescue and Resuscitation Training for Electronic Technicians and Approved Persons

All electronic technicians and approved persons must be trained in the methods of rescue & resuscitation of persons suffering from electric shock. Retraining of electronic technicians and approved persons in these skills shall be done each year.

Survey Camp set up procedures for electricity generating sets above 6KVA

- All generator must comply with Australian Standard AS 2709-1989 Electricity generating sets- Transportable (Up to 25kW), the generator unit is to be positioned as centrally as possible with the earth electrode driven as required. All residual current devices (RCD) are to be checked for safe operation. These must be tested weekly.
- Leads, three phase and single phase must be run in a manner to prevent them from being damaged by wheeled traffic.
- The OHMIC resistance (neutral to earth) on each distribution board must be checked after connection to the generator board, with the generator off. The resistance must be such that:
 1. it proves the MEN connection at the generator,
 2. it will allow the circuit protection device to operate safely

ie $R=4\Omega$ therefore $I = V/R=240/4=60$ AMPS

CB set to 20A FLC trip time approximately 7 seconds.
- 3. Should this not be the case, lead lengths must be reduced or the CSA of the lead increased to a safer value.
- When each board is connected to the generator, then power up with no connected load, a test of the RCD unit and the integrity of the neutral and earth connections must be carried out. A clipsal test unit is readily available to do this test. This must be repeated weekly.
- When connecting leads to the distribution boards they should be run-out to the required position before being plugged in to the board. Leads must be “packed up” from the plug not the socket end.
- Each lead must be checked for mechanical damage and continuity prior to being placed into service. Faulty leads should be tagged.
- Load balancing must be carried out with all connected loads “on”. The balance at each board and at the generator should be within 20% if possible. Cyclic loads (refrigerators etc) should be spread over the three phases whenever possible.
- Leads must be run so that there is no strain on the plug/socket connections and so that they are neither liable to mechanical damage, nor a hazard to personnel.

- Care must be taken to ensure that “power boards” are fitted with an internal circuit breaker and that the connected load is not excessive ie. 2400 watt max. Do not use more than one “power board” per lead unless feeding low current loads like computers etc.
- When packing up, check leads for damage. Damaged leads are to be tagged for repair.
- All electrical appliances brought into the camp must be checked for safety. Particularly when road transport is involved, appliances including personal property must be checked on arrival.

Set up procedures for electricity generating sets up to 6KVA

All generators must comply with Australian Standard AS 2709-1989 Electricity generating sets- Transportable (Up to 25kW). Approved persons must fit residual Current Devices (RCD) to all electricity generating sets with A-grade licence.

Prior to field work

All appliances, electricity-generating sets must be checked for safe operation.

Testing of RCD must include:

- Short/leakage to earth (258mA)
- Time to trip
- Sensitivity (ie test under and over the RCD Trip rating)

In the Field

The RCD fitted to the electricity generating set must be tested by pressing the test button every time it is used.

9.2. GENERAL SAFETY HINTS FOR USERS OF ELECTRICITY

Safety routines that help to prevent electrical accidents include the following:

Safety Practices for Users

- Report any electrical defects to your supervisor.
- Use the correct appliance for the specific task.
- Ensure that electrical appliances are dry and clean.
- Do not use general-purpose electrical appliances when wet or in wet areas without suitable residual current device protection. Always push-button test the residual current device before each use.
- Do not withdraw a plug from a socket by pulling the cable.
- When connecting leads to the distribution boards they should be run-out to the required position before being plugged in to the board. Leads must be “packed up” from the plug not the socket end.
- When packing up, check leads for damage. Damaged leads are to be tagged for repair.
- Extension leads on reels must not be used. The extension leads must be divided into shorter practical lengths.
- Extensions leads must not be would up while power is on.

Electrocution

- Before touching a person suspected of being electrocuted, switch off the electricity supply (ie by switching off and removing the plug from the socket).
- Commence cardiopulmonary resuscitation immediately if heart and breathing has stopped following an electric shock.

Electrical Fires

Only prescribed extinguishers should be used on electrical fires. Where possible, the electricity should be switched off before firefighting.

**TABLE 1
TESTING INTERVALS FOR ELECTRICAL EQUIPMENT**

Type of environment in which equipment is used	Interval between inspection and tests				Cord extension sets and EPODs
	Class of equipment		Additional testing for portable RCD's		
	Class 1 (protectively earthed)	Class 11 (double insulated)	Push-button test (by user)	Test for operation	
1. Construction and demolition sites	3 months	3 months	Immediately after connection to a socket outlet, and every day in use	3 months	3 months
2. Factories, workshops and places of work of manufacturing, repair, assembly, maintenance or fabrication	6 months	12 months	Daily, or before every use, whichever is the longer	12 months	6 months
3. Other commercial environments with no special protection, eg. laboratories, tea rooms, office kitchens, and health care establishments	12 months	12 months	3 months, or before every use, whichever is the longer	2 years	12 months
4. Office environment where equipment is not subject to constant flexing of the supply cord	5 years	5 years	3 months	2 years	5 years
5. Hire equipment	Before each hire	Before each hire	Before each hire	Before each hire	Before each hire



SECTION 10 - COMPRESSED GASES

10.1. INTRODUCTION

It is of paramount importance to ensure that staff or students using gases and handling gas containers is adequately trained.

This part of the policy aims to provide basic guidance for users of gases on the properties of gases, safe storage, handling and use. Material Safety Data Sheets (MSDS) are also available.

Project Leaders, Supervisors and Party Leaders

Project Leaders, Supervisors and Party Leaders have a responsibility to:

- provide a safe workplace and procedures for staff using, handling and storing gases under the area of their control;
- implement the policy within the workplace under their control;
- identify staff training needs and arrange for the provision of appropriate training (the Occupational Health and Safety Adviser is available for advice on training).

Classification of Gases

Some substances are recognised as dangerous or hazardous. These substances are commonly called dangerous goods. Dangerous goods are divided into 9 classes according to hazard. These are outlined in Appendix 1.

All compressed gases are Class 2. The common hazard is the pressure under which a gas is contained. Pressure hazards are referred to in the next section. Class 2 is divided into three sub-classes:

- *Flammable Gas (red diamond);*
- *Non-flammable, non-toxic (green diamond);*
- *Poisonous Gas (white diamond).*

Some dangerous goods have hazards in more than one class. These are given a second class or “subsidiary risk” and are usually labelled with a second diamond. Compressed oxygen and Nitrous Oxide are exceptions having only a single “Oxidising Gas” yellow diamond under legislation.

Some typical gases with subsidiary risks are:

- *Carbon Monoxide - red, white diamonds*
- *Chlorine - white, yellow diamonds*
- *Hydrogen Chloride - white, white/black diamonds*
- *Liquid Oxygen - green, yellow diamonds.*

Properties, hazards and precautions

Gases can only be kept under pressure. There are two hazards resulting from pressure:

- *the pressure may be too great for the container, causing it to rupture;*
- *the gas may leak out of the container into the working atmosphere.*

The precautions to prevent container rupture are:

- Check the pressure does not exceed the pressure ratings of any equipment.
- Do not tamper with pressure safety devices.
- Do not weaken containers through damage. This could be wall thinning through corrosion or mechanical damage; material weakening through heating; stress concentration through dents.

The precautions to prevent gas leak hazards are:

- Avoid leaks by careful connecting and careful closing of valves.
- Check for leaks.
- Use/store/transport gas in well-ventilated surroundings.

Flammability

Flammable gases burn or explode when mixed with oxygen, or air, or other oxidising gases and are ignited. Common flammable gases are acetylene, LPG (propane/butane), hydrogen. Some flammable gases ignite without an external source of ignition eg. silane, dichlorosilane and phosphine. These are also poisonous.

When flammable gas is that burning gives out heat which can cause injury or damage. If the flammable gas is mixed with air in a confined space and then ignited, an explosion will occur. The heat damage will be minimal but the building, for example, will blow apart.

The precautions to be taken with flammable gases are:

- Do not vent flammable gases to the atmosphere, except through a properly designed system approved by the appropriate authority. When very low volume venting is necessary (e.g. filling of small LPG cylinders) ensure it is performed in the open.
- Avoid sources of ignition.
- Avoid mixtures of flammable gas and air/oxygen/oxidising agent.
- Always segregate flammable gas from oxidising gases flammable/combustible materials.
- Have fire-fighting equipment on hand.

Toxicity

Poisonous (toxic) gases react adversely with people. They usually enter through the lungs but some may also be absorbed through the skin.

The precautions to be taken with poisonous gases are:

- Leak check system by pressurising with inert gas before admitting poison, and using leak detection solution on joints.
- Provide good ventilation or mechanical extraction.
- Use a gas specific leak detection method.
- Assure breathing quality air for normal operations and emergencies.
- Have on hand MSDS, emergency equipment, poison antidote, specific operating and emergency procedures.

Identification of Gas Cylinders

Warning: If the contents of a gas cylinder cannot be identified, the cylinder should not be used and the Safety Officer notified. Never use an unidentified cylinder and always assume the worst ie. it is flammable and poisonous.

The gas name label is the primary identification of any cylinder contents and is usually located on the shoulder of the cylinder. The United Nations number appears near the gas name on all cylinders. This number is listed in the Australian Dangerous Goods Code and identifies either the exact product or the general classification of the product.

Many gas products have specific colours for cylinders eg. Nitrogen is pewter and Oxygen is black. In general, the following colour guide applies:

Grey/brown/blue hues	Non-flammable; non-toxic/inerts
Red hues	Flammable gases
Silver/Galvanised	Hydrocarbons (i.e. LPG)
Yellow	Poisons
Black	Oxygen

A class diamond exists on all cylinders either as part of the gas name label or as a separate diamond. This identifies the overall hazard of the contained contents.

The classifications that may exist are:

Class 2.1 Flammable gas (Red Diamond)

Class 2.2 Non-flammable, Non-toxic gas (Green Diamond)

Class 2.3 Poison Gas (White Diamond)

Class 2.2, 5.1 Oxidising Gas (Yellow Diamond)

Although all compressed gases are Class 2, they may also have subsidiary risks class diamonds eg. 5.1, or 8.

10.2. SAFE STORAGE

Storage design

Gas cylinder stores must be:

- In compliance with statutory state/territory requirements eg. State Dangerous Goods Act for storage and handling;
- Constructed of non-combustible material and have firm, level floor, preferably concrete;
- Away from protected works (ie. offices) and thoroughfares;
- Well ventilated and preferably provided with basic weather protection;
- Free from fire risk and away from artificial heat and ignition sources;
- Free from contamination (dust, fumes, spray, chemicals);
- Designated as a “no smoking”, “no naked flame” area;
- Clearly marked as a gas store with appropriate hazard diamond signs eg. flammable, poison, corrosive, non-flammable compressed etc.;
- Preferably clearly marked with HAZCHEM labelling. In some States (WA & VIC) this is mandatory;
- Kept clean and with clear access, restricted to authorised personnel;
- Provided with appropriate safety/emergency equipment eg. fire extinguisher, breathing apparatus, suitable personal protective clothing;
- Provided with a store inventory and copies of MSDS for each gas held;
- Fenced off to secure against unauthorised entry;
- For highly toxic gases, suitable means of disposal or absorption should be considered for emergency use.

Note: Above certain quantities, all stores require D.I.R approval under statutory dangerous goods legislation.

Storage requirements

- The gas cylinder storage area must be secured within the premises perimeter fence. If premises are not secured, a separate cylinder storage compound should be provided - this requires a 1.8 m high fence and lockable gate, which opens outwards.
- A 3m separation is recommended between each of the individual hazard classes by either line of sight or a separating wall.
- The separating wall must be of a non-combustible (rated 4-hour fire), vapour-proof material.
- Where cylinders are enclosed within their own building or compound, the walls must be 50% open to ventilation.

Store operation

Cylinders in storage must be:

- Stood upright (except some very small cylinders) and properly secured to prevent toppling over, to protect cylinder valve from damage;
- Kept with supplied valve protection cap or guard or gas tight valve outlet cap/plug securely in place;
- Segregated in the storage area according to the various categories (eg. flammable, oxidant non-flammable, poison etc.);
- Segregated in the storage area according to content (eg. full/empty);
- Managed to ensure that the oldest stock is used first;
- Checked periodically for general condition, severe rusting, leaks etc.

Note: Special care is required with gases supplied in aluminium cylinders. These must never be allowed to come into contact with corrosive, caustic, acid materials, or sources of excessive heat (ie. >45°C).

Personnel

Staff who enter the storage area must be trained to:

- maintain the store and its contents in a safe manner;
- identify the contents of different containers and know the potential hazards;
- operate and use the safety and emergency equipment provided.

Safe Handling

Staff who regularly handle gas cylinders must be provided with stout gloves, protective footwear, a trolley or other suitably designed device for transporting cylinders.

Most accidents/injuries relating to gas cylinders occur whilst moving/handling cylinders. Staff must be trained in the following key points:

- To remember the mass of the cylinder (up to 100kg)
- To beware of trapping fingers between cylinders whilst they are being moved
- To seek help when lifting heavy cylinders manually and observe correct posture
- To use a trolley for moving heavy cylinders and to ensure the cylinder is secured
- To ensure regulator, withdrawal equipment is disconnected and valve is firmly shut when moving
- To ensure valve protection caps and gas tight outlet cap/plugs are securely fitted to cylinders whilst being moved and not in use.

Safe Transport

Gas cylinders must always be checked prior to transportation to ensure:

- valves are closed and not leaking
- valve outlet sealing plug or cap nut is fitted and tightened using an appropriate tool
- valve protection cap or guard is correctly fitted
- cylinder or container is correctly labelled in accordance with the Australian Dangerous Goods Code.

Vehicles used for transporting gas containers must have a well ventilated load area (private cars and small vans must never be used to transport toxic gases). Vehicles must carry diamond signs appropriate to the class or classes if above a certain quantity of goods is being transported, they should be equipped with a suitable fire extinguisher and, if poison gas is carried, a suitable respirator gas mask must be available.

The load on the vehicle must be adequately secured to prevent movement during transport. Cylinders must not protrude outside vehicles and liquified gases must always be transported vertically to ensure the mandatory safety relief device is always in contact with the gas space.

Safe Use of Compressed Gases

The gas usage area should be well ventilated; preferably arranged with cylinders outdoors and gas piped indoors; arranged to minimise fire risk in the vicinity of the gas containers and provided with appropriate safety/emergency equipment and information.

Personnel who use compressed gases should be trained in:

- the identification of the gas container contents and the potential hazards;
- the operation and use of the safety and emergency equipment;
- the handling and use of the gas container and its valve;
- the correct operation of the gas flow and control equipment;
- the importance of ensuring that the gas container is not contaminated by a backfeed from the process;
- what emergency procedures to institute should a problem occur.

Cylinder pre-use checks

Prior to connecting equipment and using gas from cylinders:

- check to see if they contain the correct gas for the intended usage by reference to the Gas Name Label;
- secure properly to prevent toppling over or other movement which could fracture the connecting pipe work or damage control equipment;
- remove by hand the disposable plastic dust plug;
- check for cleanliness of the cylinder valve outlet for foreign matter which may harm equipment and be hazardous
 - for Class 2.2 Non-flammable, non-toxic gases and Class 2.2/5.1 oxidising gases open and quickly shut the cylinder valve to remove water and dust;
 - for Class 2.1 Flammable and Class 2.3 Toxic gases use compressed air or a clean brush to remove water or dust.

Care of the cylinder

- do not drop cylinders from a height or allow cylinders to fall over;
- secure cylinders against falling while in use, storage or transport;
- do not allow naked flames to impinge on cylinders;
- do not allow any form of heating that would artificially raise the temperature of the cylinder above 45°C;
- do not use cylinders as rollers or supports for plates;
- protect cylinders from impact damage from passing vehicles or crane loads;
- protect cylinders from paint spray, acids, alkalis, prolonged water contact;
- do not strike electrical arcs on cylinders;
- do not cover up or repair cylinder damage;
- do not repair cylinder valves;
- keep cylinders, particularly valves, clean;
- close cylinder valves when the cylinder is not in use and also when the cylinder is empty.

Leak Testing

- A simple leak test of the complete system is as follows:
 - Attach and tighten regulator, hose and equipment-ensure regulator control knob is screwed out;
 - Shut off control valve on equipment;
 - Slowly open cylinder valve, then screw in regulator control knob to pressurise system;
 - Close cylinder valve and watch regulator pressure gauges.
 - If the pressure is retained there is no leak in the system.
 - If pressure drops, a leak is present and it should be detected. The equipment should then be depressurised and repaired.

Safe return of used gas containers

It is important to ensure that gas containers are in a safe condition after use. Before returning empty gas containers, a check should be carried out to ensure:

- the container valve is closed and not leaking;
- the container valve outlet plug or cap nut has been securely refitted;
- the container valve protection cap or guard is securely refitted.

Emergency Procedures

An effective action plan for dealing with emergency situations should include the following key factors:

- maintaining a register of products and quantities and their locations;
- documenting and practising emergency procedures;
- ensuring personnel are properly trained in product properties and the use of emergency equipment;
- ensuring adequate emergency equipment is available;
- ensuring there is available suitable absorption/disposal systems for gases handled in an emergency.
- It is important to take effective action to minimise any possible injury to persons, followed by minimising damage to property, equipment or the environment.

Suspected leak - location uncertain

Check the entire system for any indication of a gas leak, such as a hiss or smell.

Test with soapy water solution, which will bubble at any point where gas escapes. Never use a match or flame to test.

Rejoin and test. If the leak is indoors, fully ventilate the room before further use

Dealing with Fires

If possible immediately isolate gas supplies. Safely release the gas pressure in affected pipelines and equipment. Ventilate area to prevent explosive atmosphere build up. Do not use cylinder or appliance again until inspected.

If there is an ignited flammable gas leak isolate the gas supply if possible. If this is not possible, do not extinguish flame. Call the fire brigade.

Try to ensure the flammable gas burns in as controlled manner as possible, does not ignite anything else and does not impinge on any pressurised gas containers, equipment or pipelines. If possible, keep the surrounding area and equipment cool by spraying with water from a protected and safe distance.

Dealing with Gas Leaks

If safe, immediately attempt to close cylinder valve.

Ventilate the area thoroughly until the air is clear.

If possible, remove the cylinder carefully to safe outdoor location.

Keep hands and face clear of any stream of escaping liquid.

If cylinder cannot be removed, disperse gas with fine water spray and provide maximum ventilation or evacuate the immediate area.

SECTION 11 - MANUAL HANDLING

11.1. BACKGROUND

The National Standard for Manual Handling defines Manual Handling as "any activity requiring the use of force exerted by a person to lift, lower, push, pull, carry or otherwise restrain any animate or inanimate object".

Manual handling affects all staff to some degree and within field operations, there are particular areas that would be considered as high risk (eg Land Seismic operations), which have the potential to develop as a major health and safety risk. Line [identify correct title for responsible officer in your agency] Supervisors, Field Party Leaders and staff must be aware of the risks associated with manual handling and the strategies, programs and procedures which can be employed to effectively eliminate or minimise such risks.

Many employees suffer painful injuries while performing manual handling tasks. The most common injuries due to manual handling are back injuries, sprains and strains and injuries resulting from OOS. The cost of these manual-handling injuries is enormous in human, financial and social terms to the employee, employer and the community.

Reducing manual handling injuries requires a planned approach. The following legislation and Approved Codes of Practice provide a framework and practical guidance on how to reduce manual handling injuries:

Occupational Health and Safety
(Commonwealth Employment)
(National Standards) Regulations.
Part 5 Manual Handling

Approved Code of Practice for Manual
Handling, incorporating:
National Code of Practice for Manual Handling
[NOHSC:2005(1990)]
Guidance Note for Manual Handling
in the Retail Industry
[NOHSC:3014 (1992)] as amended

Approved Code of Practice for the Prevention of
Occupational Overuse Syndrome, incorporating:
National Code of Practice for the Prevention of Occupational Overuse Syndrome
[NOHSC:2013 (1994)]

This field policy, guidelines and instructions require all personnel to be aware of the potential hazards associated with manual handling tasks and to not knowingly place their own safety or that of others at risk, in accordance with the relevant Commonwealth and State Occupational Health and Safety legislation. All personnel must comply with the policy and guidelines. The Acts also state that situations or practices which, in the employee's view places their own, or the health of other personnel at risk, must be brought to the attention of Line [identify correct title for responsible officer in your agency] in the first instance and that all related work should cease until the issue has been fully investigated, or the problem rectified.

This manual handling policy has been developed as part of the field policy to focus on field based activities.

11.2. OBJECTIVES

The objectives of this policy are to:

- ◆ prevent the occurrence of injury which may result from manual handling and other tasks;
- ◆ foster co-operative and consultative management of health and safety at the workplace and,
- ◆ provide guidance for the provision of appropriate training and information.

11.3. DEFINITIONS

The following definitions are provided by the National Standard.

Consultation: involves the sharing of information and exchange of views between [identify correct title for responsible officer in your agency] workers and/or their representatives on health and safety issues.

Force: any action that tends to maintain the position of an animate or inanimate object, to alter the position of animate or inanimate object, or to distort it.

Hazard: anything that has the potential to result in harm to a person.

Manual Handling: means any activity requiring the use of force exerted by a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any animate or inanimate object.

Risk factor: is a factor that contributes to increased risk of manual handling injury.

Static and dynamic effort: static effort occurs when a person is required to exert force to restrain an object or adopt a fixed posture. Dynamic effort occurs when a person has to exert force to move an object or themselves. As a general rule static effort can be maintained for shorter periods and presents a greater risk than dynamic effort does.

Special needs: refers to special needs of a particular individual, either temporary or permanent.

Weight: the mass of an object.

11.4. RISK IDENTIFICATION

In order to identify those manual-handling tasks likely to be a risk to health and safety, and to enable those tasks to be assessed, it is necessary to carry out risk identification. The purpose of risk identification is to identify and place in priority order, the jobs or tasks which require risk assessment.

There are three basic steps to risk identification:

- ◆ analysis of workplace injury records; (has anyone been injured in the field before and how)
- ◆ direct observations or inspection of the task or work area; and,
- ◆ consultation with employees.

Analysis:

Workplace Injury Records should be examined to identify workplace areas where the injury occurs, where the job/task was performed, the injury sustained and the type of accident. It is also useful to ascertain the severity and frequency of any workplace, including the field, work injury.

Consultation:

Risk identification must be conducted (as early as possible) by *[[identify correct title for responsible officer in your agency]* Party Leaders in consultation with employees involved in the tasks, as they are more likely to be aware of the risks inherent in the workplace or field.

Observation and Inspection:

Direct observation and inspection of the task being performed will assist in the identification of the risk, and therefore, the possible prevention of injury.

11.5. RISK ASSESSMENT

Line *[identify correct title for responsible officer in your agency]* Field Party Leaders have the responsibility to initiate a manual handling risk assessment.

A risk assessment is indicated by the regular risk identification exercise. As soon as a risk is detected an assessment should be carried out. This is critical whenever an injury has occurred within the workplace and when a working process has been modified or introduced.

In assessing a job or task all manual handling risk factors should be considered and in determining appropriate control measures the interaction of all the factors must be taken into account.

Assessment Guidelines

Actions and movements

These should not cause undue discomfort and pain and should be performed smoothly and under control, avoiding any sudden, jerky movements.

The worker should be in a balanced and comfortable position, avoiding any extreme ranges of joint movement when performing the task. Repetitive bending, twisting and overreaching movements are among those liable to increase risk of manual handling injuries.

Elements to consider:

- *Load is handled evenly*
- *No twisting of the trunk*
- *No bending of the trunk*
- *No two actions performed at the same time when one action is holding an unsupported fixed position*

Workplace and workstation layout:

The layout should suit the employee and there should be adequate room to perform the task safely. In general, working levels should be waist high with tools, plant and equipment handled placed in front of the employee and within easy reach. Tools should be appropriate to the work being carried out and well designed.

Consider the following:

- *suits the employee*
- *has adequate space*
- *work heights are matched or adjusted*
- *has back support and leg room*

Working posture and position

The employee should be able to adopt several different, healthy and safe working postures. One posture should not be maintained for long periods without a break.

Bending and/or twisting of the spine should be avoided, especially when this is prolonged or repetitive.

Make sure that:

- *a single position is not maintained for long periods*
- *there is no frequent bending or bending for long periods*

Duration and frequency of manual handling

The risk of injury rises with the increasing frequency repetition and duration of manual handling activity. How often and how long a task is performed are key risk factors. Pushing, pulling, carrying and holding of loads can also be a problem if performed frequently or for prolonged periods.

Factors that can influence a person's ability to continue prolonged exertion are available energy reserves, the employee's general physical fitness and the relative workload.

Check if:

- *the same task is performed constantly*
- *there is any relief from performing manual handling*
- *similar manual handling tasks are performed throughout the shift*

Location of loads and distances involved:

Distance over which loads are manually handled should be as short as possible, thereby minimising the stress and exertion placed on the body. The longer the distance the lighter the load should be. If a load is located above the employee's shoulder height or below mid thigh height or otherwise requires extended reach, then the risk of injury is increased.

Check, if the load is large that:

- duration of handling is short
- there are no obstructions

Weights and forces

The weight of objects must be within the capacity of the employee to handle without undue difficulty or discomfort.

In seated work it is advisable not to lift loads in excess of 4.5kg and when standing it is advisable to keep the load below or within the range of 16 - 20kg. Mechanical assistance and/or team lifting arrangements should be provided to reduce the risk of injury for weights that are from 16 kg and up to 55 kg. No person should lift, lower or carry loads above 55kg.

Force should be applied smoothly, evenly, and close to the body. Forces exerted should be well within the capacity of the employee and not employed while in poor posture.

Characteristics of loads and equipment

When assessing risk the following characteristics should be taken into consideration; dimensions, stability, rigidity, practicability, surface texture and temperature, grips and handles.

Make sure that the object is:

- *easy to grasp in a comfortable working position*
- *stable while handling*
- *not awkward to handle*
- *not greasy, slippery or wet*
- *does not have sharp edges or protrusions*
- *not very cold or very hot*
- *not blocking work view*

Work organisation

Work organisation factors that may influence risk include staffing levels, availability of equipment, work schedules, shift work, workplace, task variety, rest breaks, recovery time and work procedures.

Work environment

Work environment factors include climate (temperatures), lighting, space and surfaces underfoot. The housekeeping (around and within campsites, work-sites) and footwear are associated factors that have particular relevance to the risk of slips, trips and falls while handling loads.

Skills and Experience

Employees /students must have the knowledge and ability to perform the required task(s) and this is gained through appropriate training and education. Check if employees have been trained in:

- *recognising and evaluating manual handling risks*
- *techniques for safe manual handling*
- *the use of mechanical aids*
- *team lifting techniques*
- *the use of personal protective equipment*

Age

Employees or students under 18 years of age must be given more consideration when manually handling as they are still developing physically and are therefore at greater risk of injury. It is recommended that employees under 18 years should not manually handle objects weighing more than 16 kg without mechanical or other assistance (ie including team lifting).

As age increases, the person's capacity may decrease, thereby giving rise to a greater risk of injury. However, age alone is not sufficient for assessing risk, physical loss may be compensated by their experience and skill at the task. All relevant risk factors must be taken into account.

Clothing

The type of clothing worn at work may hinder safe manual handling, eg. tight clothing which restricts movement will adversely affect manual handling technique. Specialist clothing such as a uniform or personal protective

Special needs

In some instances employees may have special needs which should be taken into consideration in the risk assessment process. For example, a specific disability, or returning to work after an illness or pregnancy etc.

11.6. RISK CONTROL

Risk control is the process of eliminating or reducing identified and assessed risk factors within the workplace. Having identified and assessed manual handling tasks you will probably have a reasonable idea of the possible solutions which can be used to eliminate or reduce the risk factors.

It is very important that during risk control there is consultation with the employee(s) performing the task as the employee(s) or students will be the most affected by any change to the workplace, and co-operation of the employee(s) is necessary for the change to be adopted successfully. The Safety Officer is also available to provide advice and conduct training and staff awareness activities.

Redesigning the task

It is very important to eliminate or reduce risk by redesign in order to remove the risk at the source. The following provides a guide to possible redesign actions that may be taken.

- *Modify object*
The object being handled may be modified or repackaged into bigger or smaller weight or a different size or shape.
- *Modify workplace layout*
The layout of the plant, equipment and accessories may be modified or rearranged. This may include increased attention to housekeeping and maintenance functions.
- *Rearrange materials flow*
The schedule, or timing, and path of materials flow may be modified. Rearranging containers may reduce the risks and the way materials are moved around the workplace.
- *Different actions, movements and forces*
With or without workplace modifications, a task may be done in a different way, using different actions, movements and forces.
- *Modify task - mechanical assistance*
Mechanical assistance, minor rearrangements of plant and equipment and an improved maintenance program can reduce the risk associated with the task.
- *Modify task - team lifting*
The actions, movements and forces required for team lifting arrangements can modify manual handling.
- *Mechanical handling equipment*
The provision of mechanical handling equipment together with training in equipment use can reduce the force required and therefore the risk involved.
- *Training*
Where the previous options have been unable to reduce a significant risk, then instruction, training and/or education in the manual-handling task is required. The content of any training program will be tailored to the specific needs of the group being trained.
- *Other administrative controls*
Other administrative controls requiring consideration include any special needs relating to the employee(s) such as their state of health. In some situations special clothing may be required to reduce injury eg gloves, footwear.

MANUAL HANDLING CHECKLIST

RISK IDENTIFICATION

Date: / /

Work Location:

.....
.....
.....
.....

Task Description:

.....
.....
.....
.....

Line [identify correct title for responsible officer in your agency]/Supervisor/Field Party Leader:

.....
(Name)

.....
(Classification)

The existence of any one of the following key risk factors, that is, a YES answer, indicates the need for further assessments as outlined in the National Standard.

MOVEMENTS, POSTURE, LAYOUT DURING MANUAL HANDLING

No.	Assessment Question	Yes ✓	No ×
1	Is there frequent or prolonged bending down where the hands pass below mid-thigh height?		
2	Is there frequent or prolonged reaching above the shoulder?		
3	Is there frequent or prolonged bending due to extended reach forward?		
4	Is there frequent or prolonged twisting of the back?		
5	Are awkward postures assumed frequently over prolonged periods, that is, not facing forward and upright?		
TASK AND OBJECT			
6	Is manual handling performed frequently or for long time periods?		
7	Are loads moved or carried over long distances?		
8	Is the weight of the object: (a) more than 4.5kg and handled from a seated position? (b) more than 16kg and handled in a working posture other than seated? (c) more than 55Kg?		
9	Is pushing, pulling or other applications of force, and large push/pulling force involved?		
10	Is the load difficult or awkward to handle, eg. due to its size, shape, temperature, instability or unpredictability?		

11	Is it difficult or unsafe to get adequate grip of the load?		
WORK ENVIRONMENT			
12	Is the task performed in a confined space?		
13	Is the lighting inadequate for safe manual handling?		
14	Is the climate (temperature) particularly cold or hot?		
15	Are floor/ground surfaces cluttered, uneven, slippery or otherwise unsafe?		
INDIVIDUAL FACTORS			
16	Is the staff/student new to the work or returning from an extended period away from work?		
17	Are there age-related factors, disabilities or other special factors that may affect task performance?		
18	Does the employees or students clothing or personal protective equipment interfere with manual handling performance?		

REFERENCES

Geoscience Australia - *Field Policies*

Minerals Resources Group - *Field Safety and Procedures Manual*

WMC NBU Exploration - *NBU Exploration Remote Areas Manual and Procedures*

Victorian Institute of Earth and Planetary Sciences -
Safety & Environmental Procedures & guidelines for Field Operations

Commonwealth Safety Management Forum -
Working Alone or in a Remote Location

CSIRO Exploration and Mining -
Field Work: Authorisation, Communication and Emergency Procedures

Monash University -
Guidelines for Health and Safety During Field Activities in Country and Remote Areas

Qld Government. Department of Mines and Energy
Exploration Safety Guidelines

OHS Risk Assessment (Example of a Risk Assessment)

(Attachment A)

Activity:	<i>Field trip to?</i>
Period:	
Participants:	
Responsible Officer:	
First Aid Officer (qualified):	

Risk Description	Prob	Sev	Matrix value	Management Strategy	Resources/Planning

Matrix interpretation

Probability	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophe (5)
<i>Almost Certain (A)</i>					
<i>Likely (B)</i>					
<i>Possible (C)</i>					
<i>Unlikely (D)</i>					
<i>Rare (E)</i>					

Impact/Severity

Critical high: Treatment plans developed, implemented & reported to [*responsible officer in agency/university*]

Medium: Treatment plans developed & implemented by operational [*responsible officer in agency/university*]

Low: Acceptable - managed by normal control procedures

Very Low: Negligible - no action required.

VEHICLE INSPECTION CHECKLIST

(Attachment B)

VEHICLE SETUP and CONDITION	Before	After	EMERGENCY EQUIPMENT	Before	After
Vehicle Service Date Checked	HF Communications Procedures .....	.....	.....
Vehicle Jacking points or approved devices fitted	2-2.4 kg dry powder fire extinguishers serviced and easily accessible .....	.....	.....
External recovery-vehicle protection bars fitted	Fire blanket .....	.....	.....
Roll bar fitted: external/internal as required	First aid kit & manuals suitable for the work & travel area .....	.....	.....
Cargo barrier or restraint fitted and in good condition	Pocket resuscitation mask for CPR .....	.....	.....
Tow bar and ball, or hitch, rated at 2500 kg (min.)	24-h emergency medical contact numbers .....	.....	.....
Front/rear recovery attach'ts secured with hi-tensile bolts	Spare HF Aerial/Base/Wander Lead .....	.....	.....
Vehicle weight capacity signs fitted & vehicle complies	Operational Sat. phone/HF radio (including test call), and Emergency communications button checked .....	.....	.....
2-Spare tyres, properly restrained, in good condition	Remote Areas Procedures manuals .....	.....	.....
2-heavy duty batteries, restrained and fully charged	Personal and Vehicle Survival Packs .....	.....	.....
Radiator mesh installed, secure and clean	Journey Plan completed and sent to nominated person .....	.....	.....
Tyre pressures correct, tyres roadworthy and suitable	VEHICLE RECOVERY EQUIPMENT		
Check wheel nuts	Snatchem strap; minimum 10 m long and 8 t rating .....	.....	.....
Underside of vehicle clear of combustible materials	1-Standard jack and jack plate for the vehicle in working condition .....	.....	.....
Steering rod underbelly protection OK	1-JackAll Hi-Lift jack and jack plate, lubricated and inspected in cover bag, or inflatable lifting device .....	.....	.....
Drinking water tank full (20 L minimum) and quality OK	4-three to five tonne rated recovery shackles .....	.....	.....
Interior clean and uncluttered	Drag chain .....	.....	.....
Air conditioner	VEHICLE SPARES, TOOLS and SUPPLIES		
Seatbelts	500 mL of Brake fluid, 4 L Engine oil and 1 L Gear oil .....	.....	.....
Exterior and tray clean	1-Funnel .....	.....	.....
Panels	1-Container of lubricant (for example: CRC) .....	.....	.....
Lights - cracked or broken	Radiator/heater hoses and clamps .....	.....	.....
Windscreen - no cracks etc.	Fan and auxiliary belts .....	.....	.....
Rear vision mirrors	Radiator anti-freeze .....	.....	.....
Mudflaps	Fuel and oil filters Fuel line spares and hose clamps .....	.....	.....
Tool Box secure	Fuses: 5, 10, 15, 20, and 2-HF radio fuses (~30 amp) .....	.....	.....
Tool/objects tied down or held in place	Starting jumper leads .....	.....	.....
Equipment clean and hygienic (eg fridge, food lockers)	Flashlight/torch with fully charged batteries .....	.....	.....
Fuel tank full of correct fuel	1-Set of hand tools suitable for the vehicle .....	.....	.....
Head lights - high beam	Wheel brace .....	.....	.....
Driving lights	Axe (axe head secured) .....	.....	.....
Head lights - low beam	Spade and/or rake hoe in good condition .....	.....	.....
Head lights - Parker's	Water hose: 5 to 10 m long .....	.....	.....
Reverse lights	Basic Toyota tool kit .....	.....	.....
Indicators	Electrical tape .....	.....	.....
Hazard lights	Side cutters .....	.....	.....
Beacon	12 inch shifting spanner and hammer .....	.....	.....
Horn	Tyre pressure guage .....	.....	.....
Coolant level	Flathead/Phillips head screw driver .....	.....	.....
Engine oil level	Spare tyre valves and covers .....	.....	.....
Oil leaks	Windscreen wiper detergent .....	.....	.....
Brake fluid	Hard hat and sun hat .....	.....	.....
Power steering fluid	Leather Gloves .....	.....	.....
Washer fluid	Bag of ear plugs .....	.....	.....
Air filter dust collector	Sunscreen .....	.....	.....
Tachometer	Water Container .....	.....	.....
Oil Pressure	OPTIONAL EXTRAS		
Temperature	Portable winch: Tirfor or similar .....	.....	.....
Ammeter	Tree protector for winch line .....	.....	.....
Warning lights	Tyre chains for slippery conditions .....	.....	.....
Parking brake			
Steering			
Brakes			
Clutch			

JOURNEY PLAN FORM

(Attachment C)

Field Activity	Destination	
	Include Map sheets (No)	

Participants (number) (attach list if necessary)

Name	Agency/University	[insert responsible person within agency/university]	[insert] Phone:

Safety Officer	First Aid Officer

Fieldtrip plan approval

Field Team Leader		Designated "Base"		Program [insert] or delegate	
Name	Signature & date	Name	Signature & date accepting responsibility	Name	Signature & date accepting responsibility

Communication

Radio/EPIRB/Mobile type	Phone number/call sign/channel	Communication Schedule

Field trip Details

Departure:	Time:	Date:
Proposed route:		
ETA Destination:	Time:	Date:
Proposed Return Route:		
Return ETA:	Time:	Date:
Notification Deadline:		

- fieldwork is a high risk activity therefore it is *essential* that OHS Assessment is completed for projects *before* fieldwork is undertaken.

Field trip Itinerary

Date from	Date to	Accommodation (hotel, camping)	Location	Contact Nos	Safety Net *	Call in req (Y/N)	Designated "Base" & alternates	Call in times	Action required if no call in
				Phone: Fax: Email:					
				Phone: Fax: Email:					
				Phone: Fax: Email:					
				Phone: Fax: Email:					
				Phone: Fax: Email:					
				Phone: Fax: Email:					

* Safety net refers to Agency/University in charge of reporting procedures and field safety. "Base" is the person taking field calls.

Road/Climate Conditions

ROAD TYPE	Sealed/bitumen	Gravel	ROAD CONDITIONS	Good	Fair	Bad
	Off road			Unknown		
CLIMATE EXTREMES	Very hot	Very cold	WEATHER	Fine	Overcast	
	Unknown			Wet	Other	

Details of vehicles

Vehicle registration		Vehicle Photo			
Vehicle make and type					
Owner of vehicle					
Colour					
Description					
Logo					
Water Carried					
Safety equipment carried					
Additional Equipment					
Odometer reading	Pre- Trip Post- Trip				OVERALL VEHICLE CONDITION	Good	Fair	Poor

Personal Details

Name		Photo
Home address		
Home phone		
Mobile		
Drivers licence No		
Height		
Weight		
Eye colour		
Hair colour		
Complexion		
Next of kin/contact		
Relationship		
Phone home		
Phone work		
Mobile		
Safety Equipment Carried		
Training/Skills		

DAILY VEHICLE CHECK

(Attachment D)

1. Walk around vehicle:

Check Tyres

(condition/inflation)

Wheels and Hubs (nuts, set hubs to free wheeling for road use)

Windscreen, Lights and Indicators (condition/clean)

Underbody (clear of obstructions, no oil/fluid leaks etc)

Radio aerials, Body panels and Bar work (no recent damage)

Fire extinguisher (properly located and charged)

2. Under bonnet:

Check-All fluid

levels/leaks (coolant, engine oil, brake fluid, clutch fluid, power steering, washer fluid)

Condition of Hoses and Fan belts.

3. Following ignition:

Check-Gauges/Warning lights,

Engine/Exhaust noises, Operation of Hand Brake, Lights, Beacon and Horn.

(Date and initial Daily Check Record Sheet)

4. Prior to leaving car park:

Check-Feel of Steering and Brakes

5. Prior to Field Use (on each occasion):

Daily Check (if not already completed)

Check-Potable water (minimum 20 litres)

Sufficient Fuel (for planned journey)

Two Spare Wheels (condition/inflation)

HF radio (operational, follow 'Procedure for Field Communications')

6. Report All Defects

If any defects are observed, a defect notice is to be completed and submitted to the Department Vehicle Controller.

Tag out the vehicle if any defect presents a risk to the safe operation of that vehicle and notify the Department Vehicle Controller. The following are examples of such defects:

Brakes ineffective (includes foot and park brakes)

Faulty steering (erratic, severe vibration)

Engine knocking noise (may indicate major internal damage)

Cracked wheel rims/ring not seated properly (change wheel immediately – DO NOT DEFLATE)

Large splits/tread separation in tyres (change wheel immediately)

