

1. Purpose

The purpose of this SOP is to provide a process for the management of workplace hazards and risks to minimise the potential for injury, adverse health effects, loss or damage due to workplace incidents.

2. Approval

Managing Director

3. Definitions

Dangerous Occurrence means an occurrence as defined in SOP 104, Appendix 2, Section 5B.

Hazard means something with the potential to cause injury or illness.

Hierarchy of Control means an accepted ranking of measures for controlling risk from elimination of the hazard, substitution, engineering and administrative controls, to the wearing of personal protective equipment.

Incident means an event leading to an injury or adverse health effect to an individual, a 'near miss', or a dangerous occurrence.

Near Miss means an incident that may have led to an injury or adverse health effect to an individual, but did not through the intervention of luck.

Risk means the likelihood or probability that a hazard may cause harm.

Risk Assessment means a process that seeks to identify hazards; then determine the level of risk by taking into account the likelihood that someone will be injured or something damaged by the hazard, the frequency of contact or exposure to the hazard, the level of exposure (eg number of people, amount/degree/extent of exposure to noise, chemicals, etc), pattern of exposure (eg continuous, intermittent etc) and the adequacy of any existing control measures.

Risk Control means the use of measures to control the risk to an acceptable level.

4. Procedure

The Hazard Management Process is at Appendix 1.

5. Training

All supervisors and other relevant staff will be trained in regard to this SOP.

6. References

The main legislation and references relevant to this SOP include:

- Occupational Health and Safety Act 2004 and subordinate regulations
- Dangerous Goods Act 1985 and subordinate regulations
- Road Safety (Traffic) Regulations
- Victorian WorkCover Authority (WorkSafe Victoria) Codes of Practice

- Australian/New Zealand Standards
- EGW SOP 104 – OHS Incident Reporting and Investigation
- Texaco Worldwide Exploration and Production, SH&E Management System

7. Referenced Forms

1. Field Work Hazard Identification Checklist (Form 048)
2. Hazard Report Form (Form 049)
3. Hazard Control Form (Form 050)
4. Workplace Inspection Checklist (Form 041)
5. Safe Work Method Statement (Form 086)
6. OHS Risk Assessment Form (Form 042)

8. Risk Management

This SOP forms an integral part of East Gippsland Water's Risk Management Program.

Appendices:

1. Hazard Management Process
2. Hazard Identification and Control Table
3. Emergency Management – P.E.A.R

HAZARD MANAGEMENT PROCESS

1. Introduction

1.1 A hazard can be defined as something with the potential to cause injury or illness to one or more people. When determining hazards associated with a task, the hazard types below should be considered:

- **Physical Hazards**, eg. noise, plant related hazards, working at height, manual handling, ergonomic, traffic hazards, collapse, falling objects etc, working on water, confined space entry;
- **Chemical Hazards**, eg. inhalation, skin contact with chemicals, ingestion of chemicals, reaction with other substances, storage issues;
- **Electrical Hazards**, eg. direct electrocution, contact with overhead or underground cables;
- **Biological Hazards**, eg. infection, needle stick injury, handling of wastes;
- **Radiation Hazards**, eg. ultraviolet (UV) light, lasers;
- **Psychological**, eg. workplace conditions leading to stress.

1.2 Risks/Hazards may arise as a result of:

- The nature and type of services performed
- The location of the work
- Materials, chemicals or equipment used
- The time of the work
- Proximity to the public or other contractors
- The work environment

2. Identification of Hazards

2.1 Hazards may be identified by EGW staff during the course of their work, while conducting a risk assessment (or job safety analysis), or as part of a formal workplace inspection.

2.2 Hazards associated with operations and maintenance field work may be identified using the Field Work Hazard Identification Checklist (Form 048) in conjunction with a risk assessment form (Form 042) where applicable.

2.3 Hazards identified during the course of work are to be reported using the Hazard Report Form (Form 049) and assessed using the Hazard Assessment Form (Form 050).

2.4 The Hazard Identification and Control Table at Appendix 2 lists a variety of hazards and the control measures that may be considered. This hazard list is not exhaustive and other controls may be considered for the hazards listed.

3. Workplace Inspections

- 3.1 All significant East Gippsland Water facilities are to be inspected at least once per year and recorded on the Workplace Inspection Form (Form 041). Major facilities such as workshops, waste water treatment plants and water treatment plants are to be inspected six monthly. Depot Superintendents are responsible for arranging inspections of facilities within their regions and providing copies of completed inspection forms to the Manager Business Risk and Compliance. The Manager Business Risk and Compliance will arrange the inspection of Bairnsdale Office.
- 3.2 Issues requiring rectification identified during workplace inspections are to be included on page 8 of Form 041, responsibility for rectification allocated (with due date) and signed off on completion. Once completed, a copy of the signed off page 8 is to be forwarded to the Manager Business Risk and Compliance for review.
- 3.3 Depot Superintendents are responsible for ensuring that action items are completed. The Manager Business Risk and Compliance will review action items periodically.

4. Assessment of Risk

- 4.1 Risk is defined as *the likelihood or probability that a hazard may cause harm*, and is a combination of the duration of exposure to the hazard, the likelihood of the hazard being realised, and the consequences. It involves using a process to determine:
 1. what levels of harm can occur;
 2. how harm can occur;
 3. the likelihood that harm will occur.
- 4.2 Often, risk controls are well known, obvious and easy to implement. In these cases, control measures that reflect the *hierarchy of control* (see Section 8) should be implemented. As a general guide, a risk assessment should be done if:
 - there is only limited knowledge about a hazard or risk or how the risk may result in injury or illness
 - there is uncertainty about whether all of the things that can go wrong have been found
 - the situation involves a number of different hazards that are part of the same work process or piece of plant and there is a lack of understanding about how the hazards may impact on each other to produce new or greater risks.

5. Hazard Classification

5.1 Hazards should be classified as follows:

- **High** Imminent and serious danger (potential for fatality or serious injury).
Stop work and action immediately.
Senior management attention needed.
- **Medium** Moderate danger (potential for lost time injury).
Action as soon as possible.
Management responsibility must be specified.
- **Low** Minor to negligible danger.
Manage by routine procedures.
Look for ways for continual improvement.

5.2 The primary goal shall be to adequately control all high and moderate risks associated with the workplace, and should be a major focus of the Risk Assessment. Persons should detail risk control measures which adequately address all identified risks. When determining risk control strategies, the hierarchy of controls summarised on the following page is to be considered.

5.3 Forms 048 (Field Work Hazard Identification and Control Checklist) are to be completed for all operations and maintenance work activities. Where Form 048 does not adequately address the risks associated with the job, a safe work method statement (Form 086 - attached to the Form 048) is to be completed.

6. Safe Work Method Statements

6.1 The Occupational Health and Safety Regulations 2007 state that a safe work method statement is to be completed for certain work, state the hazard and risks to health and safety of that work, describe the control measures to control those risks and the manner in which the risk controls measures are to be implemented (Reg 5.1.5). EGW Form 048 fulfils this function and, as stated at 5.3, where Form 048 does not adequately address the risks associated with the job, an additional safe work method statement (Form 086 - attached to the Form 048) is to be completed.

7. Control Measures

7.1 Suitable control measures must be identified and implemented for each hazard. In summary the selection of suitable control measures should take into consideration:

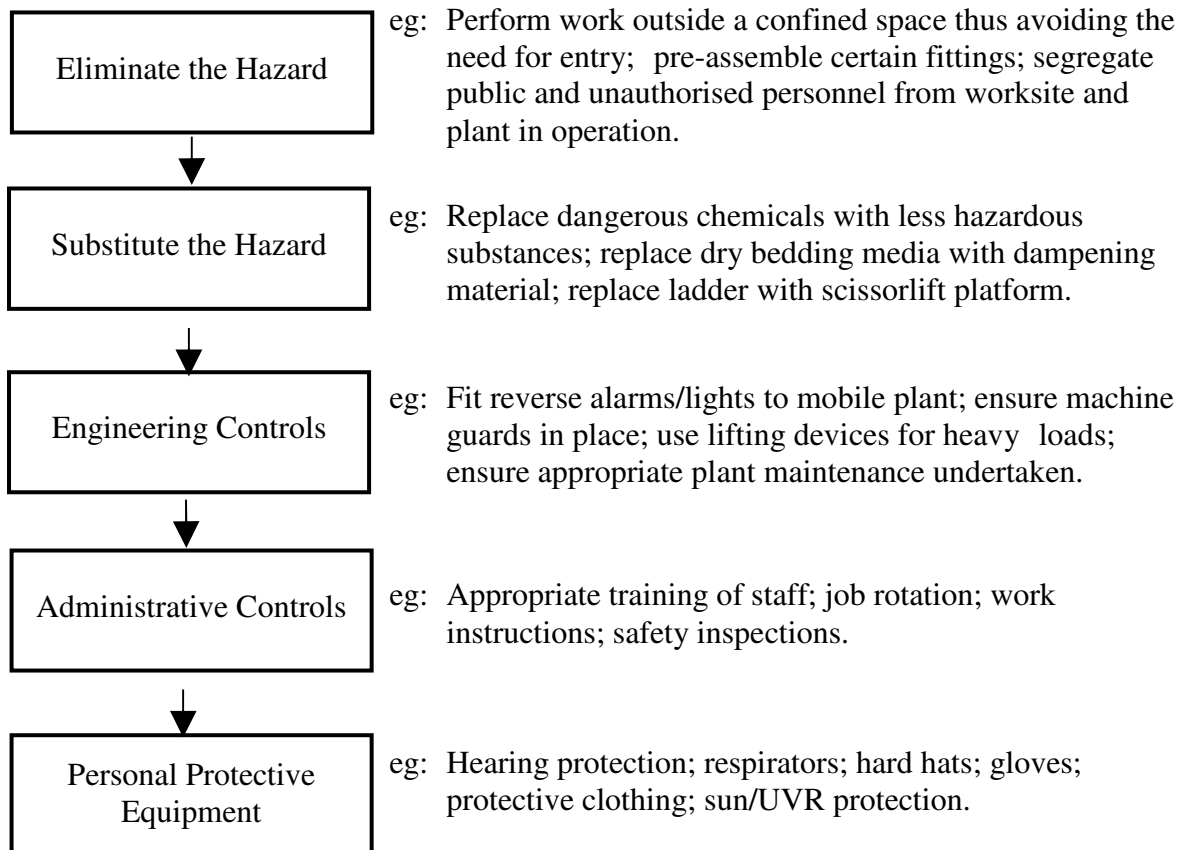
- Level of risk, and
- Hierarchy of controls (see Section 8)
- Practicability of implementation

7.2 Behavioural safety observations (BSO) were introduced in 2009 in order to assess the effectiveness of control measures for any field task. A BSO is an impromptu or planned review that can be undertaken by all staff using Form080.

8. Hierarchy of Control

8.1 The recognised hierarchy of control is as follows. Basically, the higher the risk, the higher the control measure should be up the hierarchy.

8.2 The aim should always be to eliminate all high risks, then eliminate or minimise as far as reasonably practicable moderate risks by either one or a combination of control measures.



8.3 Where a more involved and detailed risk assessment is undertaken, the assignment of risk rating may take into consideration:

- Past accident/incident reports
- Industry experience and data
- WorkCover claims data
- Personal experience and professional judgement

9. Monitor and Review Effectiveness of Control

9.1 Regularly review effectiveness of control strategy by:

- Evaluating the extent of change
- Evaluating the effectiveness of control
- Checking if any new hazards have been introduced as a result of the change.

9.2 Evaluating the extent of change will involve ensuring that the risk control action plan has been implemented. The HSE Team should monitor the implementation of the control plan with the responsible manager. Risk control plans should be updated on an on-going basis and any actions that are delayed should be reviewed, the reasons identified and appropriate action taken.

Once the risk control action plan has been implemented, the extent of any change associated with the implementation must be assessed. Change is often difficult. There may be resistance or habits that are hard to break. Changes in procedures may require training.

Strategies to monitor compliance may include:

- Observe work practices using a new procedure and record compliance over a specified time period.
- Worker consultation
- Surveys
- Auditing the process and procedure
- Performance against KPIs.
- Complete a secondary risk assessment and compare to original risk assessment.

9.3 Once the effectiveness of the controls has been reviewed, the controls should be monitored to ensure that new hazards are not created or require further controls.

Controls that are higher up the hierarchy of control require less monitoring. Controls lower down of the hierarchy are more prone to failure and need regular monitoring as they rely on human actions and behaviour (e.g. PPE and administrative controls).

Active and frequent monitoring of these controls is required with regular inspections and observations to ensure that the risk control is in place and effective.

A risk register can be used to generate a monitoring checklist for appropriate personnel to check on a regular basis. Workplace inspection checklists should include monitoring items to ensure that systematic observations occur.

Hazard Identification and Control Table

The following table provides examples of control measures for a range of generic hazards. These examples are provided as a **guide only** and important site specific factors must also be considered. **Note also that this table of examples does not include all possible hazards.**

Hazard	Possible Cause	Control Measure (in combination where appropriate)
1. Traffic Hazards	1.1 Trucks entering, exiting a work site	<ul style="list-style-type: none"> • Use of traffic controllers • Installation of temporary traffic signals • Use of Safety Signs • Speed restriction signs displayed and enforced
	1.2 Working in close proximity to roads	<ul style="list-style-type: none"> • Develop traffic management plan • Use of wickets hats or temporary barriers • Closure of road • Use of Safety Signs • Speed restriction signs displayed and enforced
2. Manual Handling (refer SOP 105)	2.1 Handling of equipment	<ul style="list-style-type: none"> • Use of lifting aids • Imposed restrictions on certain activities • Requirements for two person lifts • Training of employees
	2.2 Use of heavy hand held tools eg grass slasher	<ul style="list-style-type: none"> • Use of support harness • Limits on duration of use
	2.3 Handling of heavy objects	<ul style="list-style-type: none"> • Provide mechanical aids • Redesign object or task
	2.4 Sustained repetitive movements or fixed awkward postures for more than 30 minutes at a time or 2 hours in a day.	<ul style="list-style-type: none"> • Redesign object or task • Limits on duration of task
3. Contact with Heat	3.1 Hot Materials	<ul style="list-style-type: none"> • Isolation of hot materials • Provide appropriate protective clothing and training
	3.2 Exposure to sun	<ul style="list-style-type: none"> • (see exposure to radiation 8.5)

Hazard	Possible Cause	Control Measure (in combination where appropriate)
3. Contact with Heat continued	3.3 Fire in the Workplace	<ul style="list-style-type: none"> • Keep workplace clear of waste materials • Eliminate ignition sources from flammable atmospheres • Remove flammable materials or store correctly • Issue of hot work permit • Provide adequate fire fighting equipment • Employee fire fighting training
4 Contact with Electricity	4.1 Faulty electric leads and tools	<ul style="list-style-type: none"> • Tools and leads inspected and tagged • Examine tools before each use
	4.2 No earth leakage detectors	<ul style="list-style-type: none"> • Residual current devices in all circuits • Residual current devices tested regularly
	4.3 Electric leads on ground	<ul style="list-style-type: none"> • Electrical leads kept elevated and clear of work areas
	4.4 Electrical leads in damp areas	<ul style="list-style-type: none"> • All electric leads kept dry
	4.5 Electric leads tied to metal rails	<ul style="list-style-type: none"> • All electric leads are kept insulated
	4.6 Plant not isolated	<ul style="list-style-type: none"> • Ensure permit to work system followed • Lock-out and equipment tag procedure
	4.7 Contact with underground or overhead cables	<ul style="list-style-type: none"> • Location of services to be established • Services to be isolated when working in proximity (if possible) • Establish safe clearance distances • Use Spotter • Use alternative plant (less reach)
5. Exposure to Noise	5.1 Noisy plant and equipment	<ul style="list-style-type: none"> • Fit noise suppression to noisy plant and equipment
	5.2 Not wearing appropriate protection	<ul style="list-style-type: none"> • All personnel to wear appropriate PPE (hearing protectors)
	5.3 Excessive exposure time to noisy areas	<ul style="list-style-type: none"> • Regulate employee exposure to noise
	5.4 Unidentified 'noise hazard'	<ul style="list-style-type: none"> • Noise assessments completed and reviewed regularly

Hazard	Possible Cause	Control Measure (in combination where appropriate)
6. Contact with High Pressure	6.1 Burst air lines	<ul style="list-style-type: none"> Air hoses maintained in good condition and regularly inspected
	6.2 Hoses becoming uncoupled	<ul style="list-style-type: none"> All hose couplings fitted with pins or chains
	6.3 Using compressed air to clean clothing	<ul style="list-style-type: none"> Prohibit and instruct employees on dangers
	6.4 Improper handling of gas cylinders	<ul style="list-style-type: none"> Cylinders stored upright and secured
	6.5 Defective pressure gauges	<ul style="list-style-type: none"> All pressure gauges inspected regularly for defects
7. Contact with Chemicals (refer SOP 107)	7.1 Incorrect handling procedures	<ul style="list-style-type: none"> All employees trained in MSDS requirements
	7.2 Lack of information	<ul style="list-style-type: none"> Review Material Safety Data Sheet and assess risks
	7.3 Not wearing appropriate PPE	<ul style="list-style-type: none"> All personnel provided with appropriate PPE
	7.4 Incorrect storage	<ul style="list-style-type: none"> Hazardous substances stored and labelled correctly
	7.5 Elevated exposure levels	<ul style="list-style-type: none"> Provide mechanical ventilation All personnel provided with appropriate PPE
8. Contact with Radiation	8.1 Exposure to arc welding	<ul style="list-style-type: none"> Welding operations shielded
	8.2 Not wearing appropriate PPE	<ul style="list-style-type: none"> All personnel wear appropriate PPE
	8.3 Exposure to lasers	<ul style="list-style-type: none"> Regular equipment check Follow documented safe work procedure for lasers

Hazard	Possible Cause	Control Measure (in combination where appropriate)
	8.5 Exposure to sun	<ul style="list-style-type: none"> • EGW SOP 100 – UV Radiation Protection • Provide protective clothing and sunscreen • Minimise programmed work in high UV risk periods • Educate all staff on dangers of UV exposure and continually reinforce
9. Struck Against Object	9.1 Protruding objects in access routes	<ul style="list-style-type: none"> • Protruding objects are removed or marked • Segregate people from areas where striking hazards exist • Provide appropriate PPE (hard hat, safety boots)
	9.2 Not wearing appropriate PPE	<ul style="list-style-type: none"> • Provide appropriate PPE & training
	9.3 Personnel running in the workplace	<ul style="list-style-type: none"> • Personnel exercise restraint and walk
10. Struck By Object	10.1 Objects falling from work platforms	<ul style="list-style-type: none"> • All work platforms fitted with toe-boards • Fence off areas below to prevent access • Materials stacked securely • All personnel wear appropriate PPE (hard hats) • Secure loose objects to structure
	10.2 Debris from grinding operations	<ul style="list-style-type: none"> • Personnel wear appropriate PPE • Shield grinding operations
	10.3 Wind blown particles	<ul style="list-style-type: none"> • All personnel wear appropriate PPE
	10.4 Loads slung from cranes	<ul style="list-style-type: none"> • Loads not slung over personnel • Taglines are used to prevent loads swinging • Loads slung correctly • Safe Working Loads adhered to • All lifting equipment regularly inspected, tested and tagged

Hazard	Possible Cause	Control Measure (in combination where appropriate)
11. Fall from Height (refer SOP 106)	11.1 Uncontrolled fall hazards (ie: working within 2 m of edge with potential to fall greater 2m without control measures)	<ul style="list-style-type: none"> All fall hazards identified, assessed and control measures in place Harnesses and other synthetic fall restraint devices inspected in accordance with (iaw) Australian Standards
	11.2 No handrails	<ul style="list-style-type: none"> All work platforms have secure handrails iaw AS/NZS 1657
	11.3 Working outside handrails	<ul style="list-style-type: none"> Persons wear full fall arrest type harness
	11.4 Floor penetrations not covered	<ul style="list-style-type: none"> All floor penetrations covered or barricaded
	11.5 Ladders / scaffolding not secured	<ul style="list-style-type: none"> All ladders and mobile scaffolding secured to prevent movement. Scaffolding wheels locked prior to use. No person to be on scaffolding when moved. Ladders to extend at least 1m above landings Ladders to have SWL of at least 120kg
	11.6 Unsafe area	<ul style="list-style-type: none"> Tag and fence to prevent access
	11.7 Fall while wearing harness (suspension trauma)	<ul style="list-style-type: none"> All work while wearing harness to be minimum of 2 staff Emergency procedure and provision of first aid response in place
12. Slips and Falls	12.1 Access routes obstructed by materials	<ul style="list-style-type: none"> All access routes kept clear of materials and debris
	12.2 Leads and hoses across access routes	<ul style="list-style-type: none"> All leads kept clear of ground or covered
	12.3 Slippery surfaces	<ul style="list-style-type: none"> All surfaces used for access kept dry and in good condition
	12.4 Safety footwear not appropriate	<ul style="list-style-type: none"> Personnel wear appropriate safety footwear
	12.5 Poor visibility	<ul style="list-style-type: none"> Provide adequate lighting

Hazard	Possible Cause	Control Measure (in combination where appropriate)
13. Plant Operations	13.1 Operating plant	<ul style="list-style-type: none"> • Guarding of rotating plant and hand tools • Safe work procedures to be followed • Provide roll over cage protection • Pre-start daily safety inspection
	13.2 Moving plant	<ul style="list-style-type: none"> • Personnel kept clear when operating plant • Fit reverse alarms to plant and check operation
	13.3 Moving loads	<ul style="list-style-type: none"> • All personnel kept clear during crane operations
	13.4 Loads tipping or swinging	<ul style="list-style-type: none"> • Load slings properly secured
	13.5 Materials being positioned	<ul style="list-style-type: none"> • Safe Work Procedures for moving heavy loads
14. Plant Overturn	14.1 Crane / excavator overturn	<ul style="list-style-type: none"> • Cranes & excavators to be set up on solid ground and away from edge of excavation
	14.2 Mobile plant overturn	<ul style="list-style-type: none"> • Plant to be fitted with roll over cage protection • Safe work procedures developed
15. Overstress	15.1 SWL exceeded during lifting operations	<ul style="list-style-type: none"> • Compliance with SWL and radius charts on cranes • All lifting gear checked regularly
	15.2 Sprains and strains	<ul style="list-style-type: none"> • All personnel trained in manual handling techniques
16. Ergonomic Hazards (refer SOP 105)	16.1 Poor work posture	<ul style="list-style-type: none"> • Workstation to conform with ergonomic standards • Seating to conform with ergonomic standards • Training of employees • Provide adequate task lighting
	16.2 Use of excessive force	<ul style="list-style-type: none"> • Provide mechanical aids • Modify workplace design

Hazard	Possible Cause	Control Measure (in combination where appropriate)
	16.3 Repetitive movements	<ul style="list-style-type: none"> • Modify task requirements • Limits on duration of task
17. Asbestos Hazards	17.1 Accidental disturbance or contact	<ul style="list-style-type: none"> • Asbestos materials identified and labelled • Friable asbestos materials removed from workplace • Safe work procedures developed for removal & repair of AC pipes • Use trained, competent personnel and/or duly licensed contractors
18. Biological Hazards	18.1 Needlestick injury	<ul style="list-style-type: none"> • Provide appropriate waste disposal containers • Provide employees with PPE • Develop safe work procedures and train staff
	18.2 Working with waste water - potential exposure to HIV, hepatitis	<ul style="list-style-type: none"> • Develop safe work procedures and train staff • Immunisation program
	18.3 Potential exposure to legionella bacteria	<ul style="list-style-type: none"> • Provide employees with PPE • Implement microbial control procedures
	18.4 Exposure to bites stings (eg. Snake, bee wasp. etc)	<ul style="list-style-type: none"> • Develop safe work procedures • Provide appropriate First Aid Training
	18.5 Q Fever and other zoonoses	<ul style="list-style-type: none"> • Immunisation program
19. Excavation Trenching	19.1 Collapse of earth	<ul style="list-style-type: none"> • Shoring to be provided in accordance with Code of Practice • Shoring to be installed by competent person and inspected regularly
	19.2 Fall into excavation	<ul style="list-style-type: none"> • Provide barricades around excavation
	19.3 Asphyxiation	<ul style="list-style-type: none"> • Provide exhaust ventilation and test atmosphere
	19.4 Inadequate access to excavation	<ul style="list-style-type: none"> • Provide safe access by steps or ladders

Hazard	Possible Cause	Control Measure (in combination where appropriate)
<p>20. Confined Space Entry (CSE)</p>	<p>20.1 Access to sewers and other defined confined spaces</p>	<ul style="list-style-type: none"> • Confined spaces identified • Only trained staff and contractors to undertake CSE • CSE refresher training annually • Adhere to Confined Space Entry SOP, including use of Entry Permit • Gas detection equipment calibrated by manufacturer six monthly • SCBA inspected & tested six monthly

Emergency Management – P.E.A.R

1.1 Emergencies can be managed by evaluating four categories of risk:

- **People;**
- **Environment;**
- **Assets;**
- **Reputation**

These categories form the acronym PEAR, which should be used to provide an order of response to an emergency.

People should be considered 1st, Environment 2nd, Assets 3rd and lastly Reputation 4th.

1.2 In the event of an emergency, each risk must be determined as soon as it is safe and completed according to an order as set out PEAR rule and then from highest to lowest risk.

Identify hazards with respect to People, followed by hazard identification for the Environment, then Assets and finally Reputation.

Use the EGW Risk Matrix to determine the level of risk for each hazard in each category. You may determine that there is a higher risk in the Reputation category than in the People category; however you will have to consider the risk to the higher category (People) as a priority.

1.3 For example; an excavator digging up a water mains, strikes an overhead power line. The resultant charge through the excavator causes the fuel tank of the excavator to rupture leaking diesel onto the ground, 10 metres from a nearby creek. There is no evidence of sparks, smoke or fire. A local neighbour has called the fire brigade and local radio station.

In the example above, the risk of the incident being broadcasted on local radio would be very high, whereas the environmental risk may only be moderate. However, according to the PEAR rule, once the risk to people has been managed, the leaking diesel should be addressed before tackling the media.

1.4 Once the emergency has been managed, notification should be made as per Appendix 1 in SOP 104; OHS Incident Reporting and Investigation.