

Guidance Note QGN 08

Safety at Tourist Mines

***Mining and Quarrying Safety and Health Act 1999
October 2008, Version 3***

GUIDANCE NOTE – QGN 08 Safety at Tourist Mines

This Guidance Note has been issued by Safety and Health of the Department of Natural Resources and Mines to provide guidance in the use of out of service procedures to manage the risk associated with unserviceable plant.

This Guidance Note is not a Guideline as defined in the *Mining and Quarrying Safety and Health Act 1999*. In some circumstances, compliance with this Guidance Note may not be sufficient to ensure compliance with the requirements in the legislation.

Guidance Notes may be updated from time to time. To ensure you have the latest version, either check the Department of Mines and Energy website or contact your local inspector of mines.

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TABLE OF CONTENTS

| | | |
|-----------|--|-----------|
| 1 | PREFACE | 4 |
| 2 | PREAMBLE | 4 |
| 3 | SECTION 1: LEGAL RESPONSIBILITIES | 5 |
| 3.1 | ADMINISTRATIVE INFORMATION..... | 5 |
| 3.2 | SSE TRAINING | 6 |
| 3.3 | OBLIGATIONS..... | 6 |
| 3.4 | ACCIDENT AND INCIDENT NOTIFICATION..... | 7 |
| 3.5 | COMMON LAW DUTY OF CARE | 7 |
| 4 | SECTION 2: MANAGING RISK | 8 |
| 4.1 | RATING | 9 |
| 4.2 | CATEGORY | 9 |
| 4.3 | PERSONAL INJURY..... | 9 |
| 4.4 | RATING | 9 |
| 4.5 | CATEGORY | 9 |
| 4.6 | DESCRIPTION..... | 9 |
| 5 | SECTION 3: EMERGENCIES | 12 |
| 6 | SECTION 4: SITE INTRODUCTION | 12 |
| 7 | SECTION 5: SUPERVISION | 13 |
| 8 | SECTION 6: FITNESS ASSESSMENT | 13 |
| 9 | SECTION 7: ELECTRICITY | 13 |
| 10 | SECTION 8: AMENITIES | 14 |
| 11 | SECTION 9: HAZARDOUS SUBSTANCES | 14 |
| 12 | SECTION 10: PERSONAL PROTECTIVE EQUIPMENT | 15 |
| 13 | SECTION 11: PLANT AND EQUIPMENT | 15 |
| 14 | APPENDIX 1: RISK ASSESSMENT FORM | 16 |
| 14.1 | RESIDUAL..... | 16 |
| 14.2 | RESIDUAL..... | 21 |

1 PREFACE

On July 2nd 2002 a child was killed in an accident at a Queensland tourist mine.

During 2002/2003 there were three other serious accidents on mines where tourists sustained broken bones.

One of the recommendations resulting from the investigation into the fatal accident was for publication of a guidance note for managing safety and health at tourist mines.

As a result the mines inspectorate, in collaboration with tourist mine operators, has developed this document, which aims to be informative, instructional, and a useful safety reference for those involved with tourist mines.

It is essential that extra effort be made, beyond the normal workplace health and safety expectations, to protect inexperienced people of all ages who pay to visit tourist mines.

2 PREAMBLE

Few activities today are conducted outside a framework of legal accountabilities, and tourist mines are no exception. The legal accountabilities that apply to tourist mines are derived from:

relevant mining statutory law, from Acts of the Queensland State Parliament, which regulates the operation of mines to protect the safety and health of persons at mines, and
common law duty of care, which results from precedents established by courts of law.

The mining statutory law relating to occupational health and safety at tourist mines in Queensland is the Mining and Quarrying Safety and Health Act 1999, and the Mining and Quarrying Safety and Health Regulation 2001.

Hard copies of these documents are available from Goprint (07 3246 3500).
Electronic copies are available from the Queensland Government website at:

http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/M/MiningQuaSHA99_01B_030509.pdf for the *Mining and Quarrying Safety and Health Act 1999*.

http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/M/MiningQuaSHR01_01C_030701.pdf for the *Mining and Quarrying Safety and Health Regulation 2001*.

3 SECTION 1: LEGAL RESPONSIBILITIES

3.1 Administrative Information

All mines, including tourist mines, have legal responsibilities to report certain information to the mines inspectorate. The owner / operator of a tourist mine must ensure that the mines inspectorate for the region (see contact details previous page) is provided with the following information:

- The name and address of the person in control of the mine, referred to as the 'operator'.
- The name of, and the description of the land comprising the tourist mine.
- A description of the activities that will be going on at the tourist mine.
- The name and address of the person who accepts responsibility for running the day-to-day operations of the tourist mine in terms of ensuring that safety and health requirements are met. This person is known as the 'Site Senior Executive' (SSE).
- In the case of controlling and managing activities in an underground tourist mine, the name of the person appointed as 'underground mine manager' who may also be the SSE.
- Details of the person appointed to take the place of the SSE and/or underground mine manager when that person is absent for more than 14 days.
- Details of any serious accident or high potential incident.

3.2 SSE Training

The SSE must be competent at managing risk, investigating accidents and incidents and communicating. This is achieved by being assessed as competent in the following training courses:

QMS1: 'Apply Risk Management Processes': a short course in identifying hazards, estimating risk and establishing controls to reduce risk.

QMS2: 'Conduct Safety and Health Investigation': a short course in accident and incident investigation.

QMS3: 'Communicate Information': a short course in how to effectively communicate essential information.

These 3 courses are also known as MNMG325A, MNMG326A and MNMG327A respectively, when offered as part of the metalliferous mining package. The local Inspector of Mines or Inspection Officer can provide the details of the professional organisations that provide this training (see contact details previous page).

3.3 Obligations

Everyone involved with tourist mines, including tourists themselves, have certain obligations that they must be aware of and comply with. These are:

- follow the tourist mine rules, procedures and instructions,
- identify and report hazards,
- ensure your activities don't put yourself or others at an unacceptable level of risk,
- ensure you are fit to carry out your activities, and
- report any accidents and incidents, including near misses.

The following additional obligations are placed on those filling responsible positions at tourist mines:

- The person appointed as Operator must:
 - appoint an SSE,
 - ensure the area where activities are taking place is safe,
 - ensure machinery is safe to use, and
 - ensure that activities to be undertaken have been subject to risk assessment and appropriate controls are in place.
- The person appointed as SSE must ensure that:
 - the risk to anyone either working at or visiting the tourist mine is at an acceptable level,

- supervision of employees and tourists is at a level that ensures their safety and health,
- any critical work is carried out by a person with the relevant technical competence,
- sufficient training and assessment is provided to ensure competence of those carrying out activities at the tourist mine,
- serious accidents and high potential incidents are reported to the mines inspectorate, investigated and appropriate corrective action implemented,
- a procedure is in place to handle emergency situations,
- tourists and employees are aware of their obligations, and
- he/she is familiar with the *Mining and Quarrying Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Regulation 2001*.

3.4 Accident and Incident Notification

The SSE must immediately notify an inspector of mines in the event of:

- a fatal accident,
- a serious accident, which is an accident that causes a person to be admitted to a hospital as an in-patient for treatment for the injury, or
- a high potential incident, which is an incident that had the potential to cause a significant adverse effect to the safety or health of a person. It is an incident which, given different circumstances, could have resulted in a fatality or serious accident.

The scene of such accidents and incidents must not be disturbed, other than to the extent necessary to remove the injured person, until the inspector has examined the site and given permission. In the case of a fatal accident the local police must also be informed as soon as possible.

It is essential that each accident and high potential incident be thoroughly investigated to determine the cause(s). This will allow corrective action to be identified and taken as soon as possible to prevent a recurrence of the event.

3.5 Common Law Duty of Care

Whilst breaches of statutory law can result in the offences being dealt with in an industrial magistrate's court, common law cases are dealt with in civil courts. The most frequent cases of common law action are those for damages and compensation following a workplace injury. Under common law duty of care the tourist mine operator has a duty to take reasonable care to ensure that visitors and employees are not subject to unnecessary risks. Systems to achieve this include:

- a safe place for employees to work and tourists to carry on their activities,
- safe work methods for both employees and tourists,
- proper plant and well maintained equipment,

- adequate supervision, and
- adequate training and instruction.

The operator needs to ensure that adequate public liability insurance is held to cover potential claims in the event of an accident occurring.

4 Section 2: Managing Risk

This section deals with managing risk through hazard identification and risk assessment, which together form the basis for the legislation, and the cornerstone for managing safety at tourist mines.

A **hazard** is anything that has the potential to cause harm to anyone on site.

Risk is the chance that someone will be harmed by the hazard. It is made up of two elements:

- **consequence**, which is the harm caused if the hazard occurs, ranging from insignificant to catastrophic, and
- **likelihood**, which is the probability of the harm occurring, ranging from rare to almost certain.

There are many ways of analysing risk once hazards have been identified. The method described below follows that presented in the training course *QMS1 'Apply risk Management Processes'* (refer Section 1.2: SSE Training).

For each of the risk elements there are five rating levels (see figures 1 and 2).

Figure 1: Consequence of an event

| 4.1 Rating | 4.2 Category | 4.3 Personal Injury |
|------------|---------------|------------------------------------|
| 1 | Insignificant | No treatment |
| 2 | Minor | First aid treatment |
| 3 | Moderate | Medical treatment |
| 4 | Major | Extensive injuries/single fatality |
| 5 | Catastrophic | Multiple fatality |

Figure 2: Likelihood of an event

| 4.4 Rating | 4.5 Category | 4.6 Description |
|------------|----------------|--|
| 1 | Rare | The event may occur in exceptional circumstances |
| 2 | Unlikely | The event could occur at some time |
| 3 | Possible | The event should occur at some time |
| 4 | Likely | The event will probably occur in most circumstances |
| 5 | Almost Certain | The event is expected to occur in most circumstances |

A **risk assessment** is a careful examination of what is on the site that could cause harm to people, to decide whether adequate control measures have been taken or what more needs to be done to prevent harm. Obviously the aim is to prevent anyone from becoming injured or ill or involved in a near hit incident.

In a risk assessment of a tourist mine numerous hazards will be identified. The risk of each hazard occurring needs to be quantified to rank the risks. Then the higher risk hazards can be looked at first to see what precautions or control measures can be taken to reduce the risk.

This is achieved by linking the consequence and likelihood ratings in a table, referred to as a 'Risk Rating Table' (see figure 3). This table is divided into twenty-five boxes with each box containing a risk rating number related to the consequence and likelihood rating for the particular hazard. For example, referring to figure 3, if a hazard has a consequence rating of '4' and a likelihood rating of '3' then the risk rating would be '18'.

The boxes are numbered from one (lowest risk) to twenty-five (highest risk). The boxes in the table have been grouped into the following risk zones:

- 1-5 (green/horizontal hatching) Low level of risk
- 6-17 (yellow/no hatching) Medium level of risk
- 18-25 (red/diagonal hatching) High Level of risk

The aim of risk management is to implement control measures which reduce the risk of a hazard occurring to an acceptable level and as low as reasonably achievable. This means trying to get a risk rating in the 1-5 zone.

Figure 3: Risk Rating Table

| 4.6.1.1.1 Consequence | | | | | |
|------------------------------|----|----|----|----|----|
| Likelihood | 1 | 2 | 3 | 4 | 5 |
| 5 | 11 | 16 | 20 | 23 | 25 |
| 4 | 7 | 12 | 17 | 21 | 24 |
| 3 | 4 | 8 | 13 | 18 | 22 |
| 2 | 2 | 5 | 9 | 14 | 19 |
| 1 | 1 | 3 | 6 | 10 | 15 |

In rating the risk of a hazard there are two types of risk to consider:

- **Pure or uncontrolled risk** which is the risk of the hazard occurring when no control measures are in place, and
- **Residual (leftover) or controlled risk** which is the risk of the hazard occurring once control measures are in place.

When making decisions about **risk control measures** it is appropriate to consider and apply the most effective options before other less effective options. This results in the following preferred order of control measures:

- Elimination – removing the hazard or hazardous work practice from the mine. This is the most effective control measure.
- Substitution – substituting or replacing a hazard or hazardous work practice with a less hazardous one.
- Separation – separating the hazard or hazardous work practice from people not involved in the work, or from people altogether.
- Engineering Control – providing physical, engineered barriers to isolate the hazard from people.
- Administrative Control – introducing work practices or procedures that reduce the risk, including the provision of suitable signs.
- Personal Protective Equipment – considered when other control measures are not practical, or increased protection is required. On a tourist mine, this may mean insisting on certain clothing being worn e.g. shoes, shirt.

The use of one control measure does not prevent other control measures being used for the same hazard.

The SSE needs to demonstrate that the site's hazards are being managed by controlling risk. The best way to do this is to carry out a formal risk assessment of the operation with assistance from employees. An effective way to do this is to:

1. Write down the main processes that make up the tourist operation. Typical tourist related processes could include:
 - Arrival and departure of tourists
 - Accessing to and from mining area
 - Digging and recovery of mineral

There may be support processes that need to be considered such as:

- Operating and maintaining mechanical equipment
- Operating and maintaining electrical equipment
- Maintaining gardens and grounds
- Provision of parking areas and catering areas

2. Break each process down into its different activities.
3. Identify the hazards associated with each activity by asking "What could go wrong?" due to their own actions, someone else's actions or due to the surrounding conditions.

Tourists tend to be inquisitive and have a tendency to not only do the unexpected but to wander into unexpected places, so be open minded about possible hazards. Tourists themselves are not going to have much understanding of basic mining hazards so it is up to the SSE and staff to identify as many as possible.

4. Assess the risk of each hazard and rate it by using the risk rating table.
5. Identify suitable risk control measures; some will already exist but others will have to be put in place. Remember that not all tourists have a good grasp of English so use of control measures such as signs should incorporate internationally accepted symbols.
6. Assess the residual risk to confirm that the control measures do lower the risk.
7. Record the results of this assessment. A pro-forma for this purpose is included as Appendix 1. It includes provision to write down an action plan for those additional control measures that have to be put in place.

Appendix 2 lists typical activities and natural features that could be expected to occur at a tourist mine with the associated common hazards and examples of possible risk control measures that could be implemented. This is by no means an exhaustive list but is provided as a guide to assist in the analysis of tourist mines.

Appendix 3 shows a sample partial risk assessment record for a hypothetical tourist mine.

5 Section 3: Emergencies

Identify the likely emergency situations that could occur at the tourist mine and write an emergency response procedure that deals with these situations. Display the procedure prominently and make employees and visitors aware of it.

Ensure the required resources are either on site or available from an external emergency response organisation, such as the Queensland Ambulance Service or Queensland Fire and Rescue Authority, to adequately respond to each emergency situation.

Test the emergency response procedure occasionally to ensure it works.

Everyone needs to be accounted for in an emergency. Have a system for knowing who is on site, such as a register for signing tourists “in and out” of the mine.

An appropriate first aid kit needs to be kept on site, and at least one person should always be readily available with a current first aid certificate to provide adequate first aid to a person who is injured.

6 Section 4: Site introduction

Before commencing their activities all tourists must be provided with relevant safety and health information about the site, in particular they should be made aware of the following:

- the hazards found on site
- the site's safety rules
- a person's safety and health obligations under Section 36 of the Act
- the site's emergency procedure

Special arrangements may have to be made for tourists with language difficulties to ensure they understand what is being explained.

7 Section 5: Supervision

The SSE must take into account the level of risk tourists will be exposed to in determining the extent to which tourists need to be supervised while on site. Where tourists aren't under constant supervision, the SSE must be satisfied that the control measures in place are sufficient to ensure that the risk of harm to tourists remains at an acceptable level while they are not being supervised.

Everyone supervising tourists must have received the same training as the SSE in managing risk, investigating accidents and communicating (refer Section 1: SSE Training). Ineffective supervision of visitors or tourists can have adverse consequences, and it should be considered, and rated, in the risk management process.

8 Section 6: Fitness Assessment

Each tourist must be fit to carry out the intended activities.

A basic fitness assessment is required, with a record of the assessment being kept. It can be sufficient to have each tourist answer a simple 'yes/no' questionnaire with a list of medical conditions that might put them at risk, or alternatively, a signed declaration from each saying they have no medical conditions which might be aggravated by the site hazards and the activities they are going to undertake.

Ultimately it is up to the SSE and/or staff to make a judgement on a tourist's fitness and capability to handle site activities.

Don't permit anyone who you suspect is under the influence of alcohol, drugs or strong medication, to carry out activities on the site. Consumption of alcohol must not be permitted on the site other than in an accommodation facility or recreation area designated in writing by the SSE.

9 Section 7: Electricity

Use a licensed electrician to install, maintain and repair electrical installations and equipment.

Keep plans of any electrical installations including any buried electrical services.

Earth all electrical equipment and install a 30mA Residual Current Device safety switch on all power outlets.

Have a licensed electrician test and tag extension leads, portable electrical tools and appliances on a regular basis. This is normally done every six months, or every twelve months if the item is being used in an office environment.

Treat any electric shock as a high potential incident and immediately report it to an inspector.

If there are any questions on electrical matters contact your local Inspector of Mines (Electrical). For contact details refer to the table on page 3.

10 Section 8: Amenities

Where facilities such as those associated with food consumption, drinking water supply, washing, bathing, toilet and refuse disposal are provided they must be of a standard that does not compromise the health of the user.

11 Section 9: Hazardous Substances

Certain substances, such as

- diesel and other fuels,
- oils greases and lubricants,
- solvents,
- cleaning agents, disinfectants and detergents,
- pesticides,
- oxygen and acetylene, and
- process chemicals such as lime, caustic soda, sodium cyanide.

are considered potentially hazardous to human health and where possible should be stored and used separately from where tourist activities take place.

Keep a record of all hazardous substances on site along with a Material Safety Data Sheet (MSDS) for each one. MSDS are available from the supplier of the substance and provide important information such as:

- **ingredients,**
- **flammability,**
- **first aid for injuries resulting from contact,**
- **handling precautions,**
- **storage procedures,**
- **disposal procedures,**
- **specific fire fighting techniques, and**
- **personal protective equipment requirements.**

Bulk quantities of hazardous substances, such as drums of diesel or oil, should be stored in bunded areas to contain the liquid in the event of a spill.

Containers and storage areas holding hazardous substances must be marked or labelled to identify the substance and have the appropriate HAZCHEM signs displayed which alert everyone to the dangers of the hazardous substance.

Never store hazardous substances in containers that are not meant for that purpose, such as empty cordial bottles.

The following substances are prohibited from being used underground:

- **compressed natural gas,**
- **hydrogen,**
- **LPG and**
- **petrol.**

12 Section 10: Personal Protective Equipment

A risk assessment for an activity may identify personal protective equipment (PPE), such as a hard hat, gloves, covered footwear, earplugs, and dust mask, as a control measure to reduce or prevent exposure to a hazard. If so the SSE must make sure that:

- it is suitable and effective, and
- the person wearing it knows how to fit it and use it properly.

Posting of the appropriate blue and white sign depicting what PPE should be used in a particular area assists in making people aware of when to use it.

13 Section 11: Plant and Equipment

Plant and equipment used on site must be fit for use for its intended purpose and operated and maintained within the original equipment manufacturer's specifications.

Don't operate plant and machinery:

- if it creates an unacceptable level of risk
- if inspections, tests or monitoring show it is unfit for use.

Keep a record of plant servicing and maintenance.

14 Appendix 1: Risk Assessment Form

Mine name: _____

Description of process: _____ Date: _____

Who did the risk assessment: _____

| Activities | Hazards | Pure Risk | | | Risk Control Measures (Identify each control measure with either an 'E' if existing, or an 'A' if additional) | 14.1 Residual Risk | | |
|------------|---------|-----------|---|---|--|--------------------|---|---|
| | | C | L | R | | C | L | R |
| | | | | | | | | |

C = consequence rating **L** = likelihood rating **R** = risk rating

| Additional Control Measures | Action | By Whom | By When | Date Complete | Signed |
|-----------------------------|--------|---------|---------|---------------|--------|
| | | | | | |

Appendix 2: Examples of Common Hazards and Possible Risk Control Measures

| Typical Activities/ Natural Features | Common Hazards (that could result in unacceptable risk) | <i>Examples of Possible Risk Control Measures</i> |
|---|---|--|
| Driving a vehicle on site | A vehicle is driven too fast and collides with another vehicle or person | <ul style="list-style-type: none"> • Speed restriction signs • Speed bumps |
| | A vehicle is driven off the edge of an elevated road | <ul style="list-style-type: none"> • Construct barriers such as a windrow along each edge • Review road widths and/or traffic flow direction (2-way or 1-way) |
| | A vehicle collides with another vehicle or strikes a pedestrian while parking | <ul style="list-style-type: none"> • Designated parking bays • Specify parking orientation • Stop logs for each vehicle to park against. |
| Dams/Ponds/Sumps/Creeks | A person falls into the water | <ul style="list-style-type: none"> • Erect a fence to stop access • Erect signs warning of drowning hazard and prohibiting access |
| Rocky outcrops with cliffs or steep drop-offs/banks | A person falls over the edge of a rocky outcrop | <ul style="list-style-type: none"> • Back fill area or excavate to change slope to a gentler gradient • Erect a fence to stop access • Erect signs warning of falling hazard and prohibiting access |
| | A person is struck/buried by loose rocks or collapse of bank | <ul style="list-style-type: none"> • Remove loose rocks • Pull steep embankments down with an excavator or back-hoe • Erect a fence to stop access • Erect signs warning of falling hazard and prohibiting access |
| Open shafts | A person falls into shaft | <ul style="list-style-type: none"> • Backfill the shaft to eliminate the hazard • Place a cover over the shaft that doesn't allow people to fall through • Erect a fence around shaft to stop access with signs posted prohibiting access |

| Typical Activities/ Natural Features | Common Hazards (that could result in unacceptable risk) | <i>Examples of Possible Risk Control Measures</i> |
|---|--|--|
| Walking around site | A person trips or slips over | <ul style="list-style-type: none"> • Marked pathways and tracks • Regular maintenance on tracks and paths, removal of obstacles • Equipment and stores kept tidy in designated locations • Hoses and electric leads rolled up when not in use • Restrict access during wet weather |
| | A person enters a restricted area | <ul style="list-style-type: none"> • Identify such areas, barricade, install signs |
| | A child drinks from a cordial bottle that contains a chemical. | <ul style="list-style-type: none"> • Store hazardous substances in a secure location in correct containers suitably labelled. • Have a Material Safety Data Sheet (MSDS) for each chemical used on site readily available • Display appropriate hazchem signs where hazardous substances are stored and used. |
| | A child climbs on equipment or structures not intended for that purpose and falls off. | <ul style="list-style-type: none"> • Identify such accessible equipment and structures and barricade and/or erect warning signs prohibiting access |
| | A person is struck by falling rock from underground tunnel walls/roof | <ul style="list-style-type: none"> • Appropriate ground support • Regular program of inspection and barring down. • Wear appropriate personal protective equipment such as hard hat and steel capped boots. |

| Typical Activities/ Natural Features | Common Hazards (that could result in unacceptable risk) | <i>Examples of Possible Risk Control Measures</i> |
|---|--|---|
| Ladders | A person falls from a ladder. | <ul style="list-style-type: none"> • Provide a ladder cage for ladders longer than 6m. • Secure ladder to structure ensuring that the ladder does not overhang. Preferably it should not be greater than 75° to the horizontal. • Provide a secure landing with appropriate handrails and have the ladder extend at least 900mm above the landing. • Advise people climbing the ladder to maintain 3 points of contact • Have each person attach an appropriate fall arrest device. • Only permit one person on ladder at any time. |
| Digging on site | A person undermines a rock face/bank. | <ul style="list-style-type: none"> • Scrape down the rock face/bank with a backhoe on a regular basis to maintain the slope at a stable angle (angle of repose of the material) • Supervise digging activities. • Pre-excavate material to be dug over by tourists and place in stable piles away from the rock face/bank. Barricade the excavated area. • Restrict access during wet weather |
| | Loosened rock rolls onto feet and/or hands | Specify wearing gloves and closed shoes to protect against minor abrasions. |
| | A person digs without any protection from the sun resulting in them suffering heat stress. | <ul style="list-style-type: none"> • Ensure drinking water is available and encourage consumption • Specify wearing hat and sunscreen. • Provide covered area to rest. • Provide adequate air flow. |
| | A person is struck by a tool | <ul style="list-style-type: none"> • Ensure pick heads are secure and handles are in good order • Ensure adequate clearance from fellow tourists • Demonstrate use of tools |

| Typical Activities/ Natural Features | Common Hazards (that could result in unacceptable risk) | <i>Examples of Possible Risk Control Measures</i> |
|--|---|--|
| | A person is struck by rock fragments | <ul style="list-style-type: none"> • Ensure adequate clearance from fellow tourists • Specify wearing of safety glasses |
| | A person lifts heavy rocks | <ul style="list-style-type: none"> • Awareness of correct lifting techniques |
| Operating equipment/ heavy mobile machinery | A person is struck by heavy mobile equipment | <ul style="list-style-type: none"> • Don't operate heavy mobile equipment while tourists are in the vicinity • Use trained operators to operate equipment • Regular maintenance program to manufactures specification • Pre-start checks • Wear high visibility vests • Restrict access by tourist vehicles in the vicinity of heavy mobile equipment • Radio communication between tour guide and operator |
| | A person is caught in moving or rotating machinery | <ul style="list-style-type: none"> • Provide adequate guards, covers screens • Fence off tourist access |
| | A person is overcome by engine fumes in underground tunnel | <ul style="list-style-type: none"> • Provide adequate fresh air and exhaust ventilation |
| | A vehicle catches fire. | <ul style="list-style-type: none"> • Display 'No Smoking or Naked Flame' signs in vicinity of fuel and oil storage areas and refuelling areas. • Ready access to fire fighting equipment such as appropriate fire extinguishers for the type of fire, fire hydrants and water hoses. |
| | A person who is not authorised starts a piece of equipment. | <ul style="list-style-type: none"> • Restrict access to equipment keys/start buttons |

Appendix 3: Sample Partial Risk Assessment Record

Mine name: XYZ Tourist Mine

Description of process: Tourists dig for gold on hillside **Date: 15/10/03**

Who did the risk assessment: John Smith (SSE), Rob Brown (supervisor)

| Activities | Hazards | Pure Risk | | | Risk Control Measures (Identify each control measure with either an 'E' if existing, or an 'A' if additional) | 14.2 Residual Risk | | |
|--|--|-----------|---|----|--|--------------------|---|----|
| | | C | L | R | | C | L | R |
| Driving a vehicle on site | A vehicle is driven too fast and collides with another vehicle or person | 4 | 5 | 23 | Speed restriction signs (E) Speed bumps (A) | 4 | 2 | 14 |
| Digging for gold | A person undermines a rock face/bank. | 4 | 5 | 23 | Scrape down the rock face/bank with a backhoe on a regular basis to maintain the slope at a stable angle. (A) Supervise activities. (E) | 4 | 1 | 10 |
| | Loosened rocks rolls onto feet/hands | 2 | 4 | 12 | | 2 | 2 | 5 |
| Operating equipment/ heavy mobile machinery | A person is struck by heavy mobile equipment | 4 | 5 | 23 | Specify wearing gloves and closed shoes to protect against minor abrasions. (E) Enforce site rule, which states that heavy mobile equipment will not be operated in vicinity of tourists. (E) | 4 | 1 | 10 |

C = consequence rating L = likelihood rating R = risk rating

| Additional Control Measures | Action | By Whom | By When | Date Complete | Signed |
|-----------------------------|--------|---------|---------|---------------|--------|
|-----------------------------|--------|---------|---------|---------------|--------|

| | | | | | |
|---------------------------------|---|-------|----------|--|--|
| Speed bumps | Construct of speed bumps (150mm high) at 20m intervals along access road to carpark | Smith | 31/10/03 | | |
| Scrape down the rock face/bank. | Assess stability of hillside daily and record assessment in the Mine Record | Brown | Ongoing | | |
| | Arrange for hire of backhoe when required | Smith | 16/10/03 | | |
