



# Procedure for personal noise exposure recordings

Feedback on the information contained in this document is welcome, and should be directed to the Senior Noise and Vibration Engineer, Resources Safety.

Details of publications produced by Resources Safety can be obtained by contacting:

Resources Safety — Publications  
Department of Consumer and Employment Protection  
Locked Bag 14  
CLOISTERS SQUARE WA 6850

Telephone: +61 8 9222 3229  
TTY: +61 8 9327 8838  
Facsimile: +61 8 9325 2280  
Email: [ResourcesSafety@docep.wa.gov.au](mailto:ResourcesSafety@docep.wa.gov.au)  
Web: [www.docep.wa.gov.au/ResourcesSafety](http://www.docep.wa.gov.au/ResourcesSafety)

# Contents

<b>Objective .....</b>	<b>4</b>
<b>Instrumentation .....</b>	<b>4</b>
<b>Interpretation of results .....</b>	<b>6</b>
<b>Sample size and frequency .....</b>	<b>7</b>
<b>Appendix 1 — Personal noise exposure recordings form.....</b>	<b>8</b>
<b>Appendix 2 — Correction factors for computing LAeq,8h from LAeq records .....</b>	<b>9</b>
<b>Appendix 3 — Calculation examples .....</b>	<b>10</b>
<b>Appendix 4 — Occupation codes .....</b>	<b>11</b>
<b>Appendix 5 — Location codes .....</b>	<b>18</b>

# Objective

This document has been prepared to assist approved noise officers undertaking personal noise exposure recordings of employees involved in mining and mineral processing activities in Western Australia. It should be read in conjunction with Resources Safety's *Noise Control in Mines — Guideline*.

It explains how to undertake recordings with commonly used instruments in order to minimise variations between results obtained from devices of various makes and models.

Following these procedures will help to ensure the uniformity and reliability of data collected for Resources Safety's MINEHEALTH database.

## Instrumentation

The instrument used to measure personal noise exposure is commonly known as a noise dosimeter (Australian Standard AS/NZS 1269:2005 refers to a personal sound exposure meter [PSEM]). Noise dosimeters must comply with the requirements of Australian Standard AS/NZS 2399:1998 and be calibrated at least every two years.

There are several types of noise dosimeters currently available for assessment of employee noise exposure. Although their overall functions are similar, there are variations in elements such as instrument operation, battery checks and reading display. Refer to the manufacturer's user manual for the specific operational requirements of any instrument.

Some mining operations in Western Australia require the use of intrinsically safe instruments in their work environments. Always ensure that intrinsically safe instruments are used for measuring noise exposure in potentially flammable or explosive atmospheres.

## Setting up measurements

Where possible, noise dosimeters should be set to A-weighting and 'S' (slow) time-weighting. This setting most closely mirrors the way ears receive perceived sound pressure.

Some instruments either do not offer variable 'slow' or 'fast' settings, or automatically default to their own sampling rate for LAeq measurements.

## Taking measurements

The aim of taking a measurement with a noise dosimeter is to evaluate the average exposure of employees to noise during a normal shift.

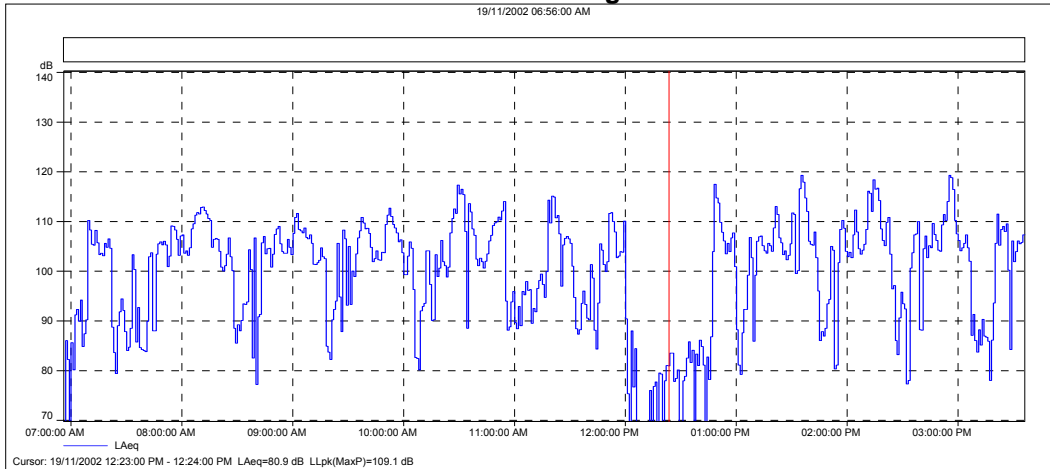
Ideally, when taking measurements the noise dosimeter should be attached to the employee at the start of a shift and collected at the end of the shift, in order to most accurately assess the employee's noise exposure over the whole shift. However, sampling for full shifts, and especially extended shifts, may not always be practical.

If a shorter period is sampled then care must be taken to ensure the result is representative of the full shift exposure. This will require the sampler to have an understanding of the tasks performed during the shift and the cycles of those tasks.

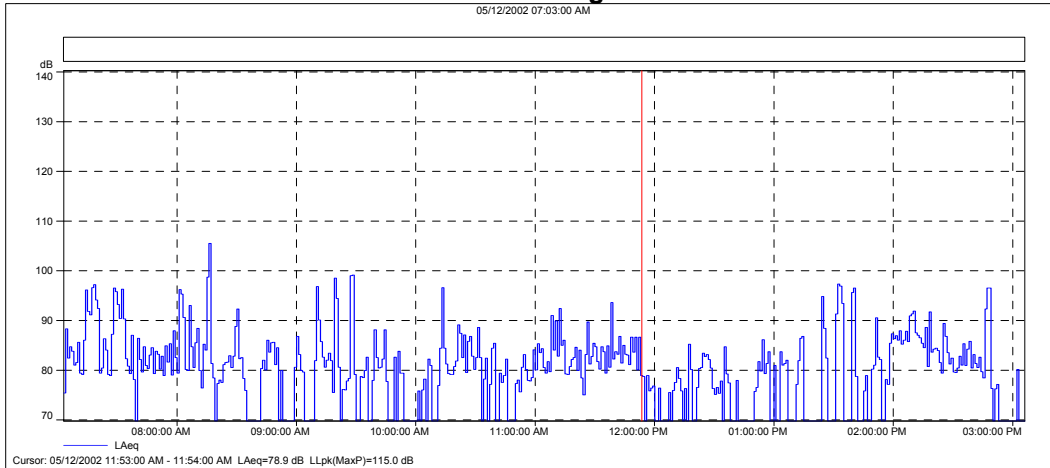
Refer to *Interpretation of results* on page 6 for calculating noise exposure values.

Figure 1 highlights the possible variation in employee noise exposure over a work cycle, confirming the need for care when selecting a representative measurement period.

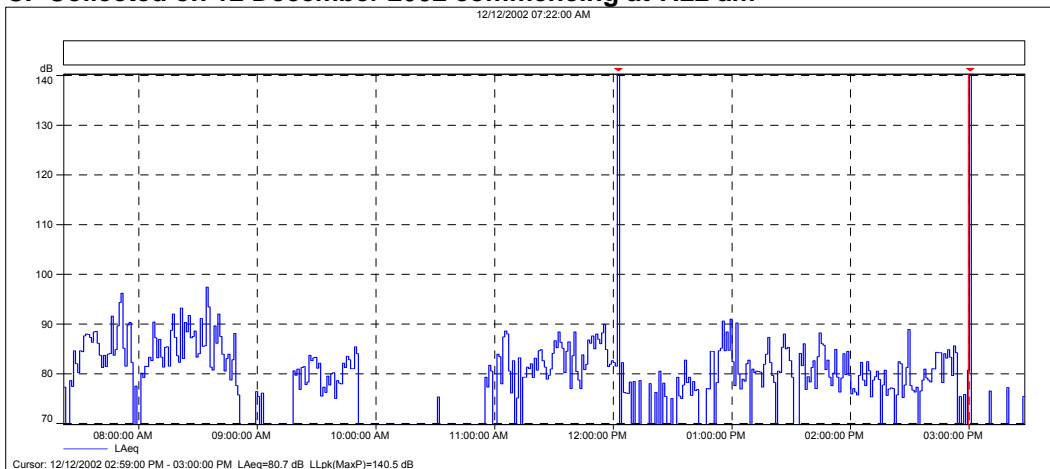
**A. Collected on 19 November 2002 commencing at 6.56 am**



**B. Collected on 5 December 2002 commencing at 7.03 am**



**C. Collected on 12 December 2002 commencing at 7.22 am**



**Figure 1 Sample recordings of an employee's noise exposure showing variations over a work cycle**

Before performing any noise measurements, ensure that employees selected for evaluation are operating equipment or performing tasks under normal (representative) conditions, and emphasise the importance of continuing to work in their usual manner (wearing the dosimeter should not interfere with normal duties).

Explain the purpose and procedures of sampling to the employee who will be wearing the dosimeter and the importance of not touching, tapping or interfering with the microphone. Instruct the employee not to remove the dosimeter unless absolutely necessary.

The general procedure for taking measurements is as follows.

1. Check that the instrument battery life is at least double the time required for the measuring period. Some instruments will lose data recorded in the memory if the battery is removed for more than 30 minutes and, therefore, prompt downloading of data will be required.
2. Check the instrument sampling mode if applicable.
3. Check the calibration of the instrument and adjust settings if required.
4. Secure the microphone to the collar or on the shoulder of the employee selected for sampling. Refer to the manufacturer's user manual for any specific requirements regarding orientation of the microphone.
5. Start the recording session and note the start time.
6. At the end of the measurement period, stop the recording session, remove the dosimeter from the employee and record the final readings.
7. Recheck the dosimeter's calibration. If the instrument is not within the calibration limits then the results are invalid (refer to Australian Standard AS/NZS 1269.1:2005, which states that if a discrepancy is found between two successive checks of more than  $\pm 0.5\text{dB}$  in the reference level, then the results of the measurements taken between the two checks should be considered invalid).
8. Record all measurement data on a personal noise exposure recordings form (Appendix 1, available from the forms section of the Resources Safety website), and ensure the form is submitted to Resources Safety for entry in the MINEHEALTH system.
9. Distribute copies of noise exposure recordings to test participants, explain the results and ensure that their hearing protection adequately protects against the recorded noise exposure levels.

## Interpretation of results

To calculate the noise exposure level of an employee working shifts of more or less than eight hours, it is necessary to normalise the employee's exposure to an equivalent eight hour exposure (LAeq,8h).

The following equation is used for this purpose:

$$\text{LAeq8h} = \text{LAeq} + 10 \log_{10} [T/8]$$

where:

LAeq equals the equivalent continuous A-weighted sound pressure level occurring over the measured time; and

T represents the shift length in hours (not to be confused with the sampling time).

In addition, shifts of 10 hours or more require adjustments to LAeq,8h values, as indicated in Table 1.

**Table 1 — Adjustments to normalised exposure level LAeq,8h for extended workshifts**

Shift length (h)	Adjustments to LAeq,8h (dB)
< 10	+ 0
≥10 to < 14	+ 1
≥14 to < 20	+ 2
≥ 20 to 24	+ 3

*Table extracted from Australian Standard AS/NZ 1269.1:2005*

Providing that the measurement of LAeq is representative of the full shift, the following method is used to calculate the LAeq,8h values:

Shift length: 8 hours LAeq,8h = LAeq

Shift length: 8 –10 hours LAeq,8h = LAeq + 10 log<sub>10</sub> [T/8]

Shift length: 10 –12 hours LAeq,8h = LAeq + 10 log<sub>10</sub> [T/8] + 1

For ease of calculating LAeq,8h values from the recorded LAeq results, use the correction factors shown in Appendix 2.

Sample calculations for LAeq,8h values are shown in Appendix 3.

## Sample size and frequency

In mining operations, the sample size should allow for each employee exposed to noise above the action level to be tested for noise exposure at least every five years.


Refer to the current noise report of the mine to ascertain the number of employees exposed to noise above the action level. Divide that figure by five to obtain the minimum sample size (number of samples) that must be submitted to Resources Safety annually.

Employees at higher risk, due to their exposure to elevated noise levels, need to be tested more frequently than those with lower noise exposure levels. Table 2 shows the testing intervals required for different exposure levels.


**Table 2 — Frequency of testing**

Noise exposure LAeq,8h (dB)	Noise dosimetry interval
Up to 90	Every 5 years
90 and 100	Every 3 years
Above 100	Every 2 years

# Appendix 1 – Personal noise exposure recordings form



Department of Consumer  
and Employment Protection  
Government of Western Australia

Resources Safety 

Personal noise  
exposure recordings

Locked Bag 14, Cloisters Square WA 6850  
 ResourcesSafety@docep.wa.gov.au  
 www.docep.wa.gov.au/ResourcesSafety

Form to be completed by an approved noise officer

Part A — Company details

Company  Site name

Form completed by  Position

Telephone no.

Part B — Employee details

Surname  Given names

Date of birth // Male  Female  Company employee  Contractor employee

Contract company  Health surveillance number

Part C — Results

Monitoring duration (min)

Shift length (hours)

Shift pattern (days on)  (days off)

Noise exposure/<sup>1</sup>/<sub>Aeq,8h</sub>/  dB(A) — rounded up to the whole decibel  
— adjusted to AS1269.1—Table 2 if required

Peak noise level/LPeak/  dB(lin) — rounded up to the whole decibel

Hearing protection: Worn  Not worn

Type: Ear muffs  Ear plugs  Both  Make/model

Date of recording // Instrument make/model

Occupation code  Location code

Comments

Part D — Noise officer details

Name and initials  Approval no.

RSD0005\_411

Note: Occupation and location codes are listed in Appendices 4 and 5, respectively.



## Appendix 2 – Correction factors for computing LAeq,8h from LAeq records

Shift length T (hours: minutes)	Correction factor (dB)
8:00	0
8:15	+0.13
8:30	+0.26
8:45	+0.39
9:00	+0.51
9:15	+0.63
9:30	+0.75
9:45	+0.86
10:00	+1.97
10:15	+2.08
10:30	+2.18
10:45	+2.28
11:00	+2.38
11:15	+2.48
11:30	+2.58
11:45	+2.67
12:00	+2.76

} Includes additional 1 dB for extended shifts

# Appendix 3 – Calculation examples

## Example 1

A personal noise dosimeter is placed on an employee for a representative period of six hours. At the end of the six hours, the LAeq reading is 93 dB(A). The employee works a 10 hour shift.

$$LA_{eq,8h} = LA_{eq} + 10 \log_{10} [T/8]$$

where shift length, T = 10 hours

$$\begin{aligned} LA_{eq,8h} &= 93 + 10 \log_{10} [10/8] \\ &= 93 + 0.97 = 93.97 \text{ dB(A)} \end{aligned}$$

for shifts between 10 and 12 hours add 1 dB(A)

$$\begin{aligned} \text{therefore } LA_{eq,8h} &= 94.97 \text{ dB(A)} \\ &\text{rounded to } 95 \text{ dB(A)} \end{aligned}$$

or using the correction factor from Appendix 2 for a shift length T = 10 hours

$$\begin{aligned} LA_{eq,8h} &= LA_{eq} + \text{correction factor} \\ &= 93 + 1.97 = 94.97 \text{ dB(A)} \\ &\text{rounded to } 95 \text{ dB(A)} \end{aligned}$$

## Example 2

A personal noise dosimeter is placed on an employee for a representative period of four hours. At the end of the four hours, the LAeq reading is 95 dB(A). The employee works an eight hour shift. Therefore:

$$LA_{eq,8h} = 95 + 0 = 95 \text{ dB(A)}$$

## Example 3

A personal noise dosimeter is placed on an employee for a representative period of 11 hours. At the end of the 11 hours, the LAeq reading is 85 dB(A). The employee works a 12 hour shift.

$$\begin{aligned} LA_{eq,8h} &= 85 + 10 \log_{10} [12/8] \\ &= 85 + 1.76 = 86.76 \text{ dB(A)} \end{aligned}$$

for shifts between 10 and 12 hours add 1 dB(A)

$$\begin{aligned} \text{therefore } LA_{eq,8h} &= 87.76 \text{ dB(A)} \\ &\text{rounded to } 88 \text{ dB(A)} \end{aligned}$$

or using the correction factor from Appendix 2 for a shift length T = 12 hours

$$\begin{aligned} LA_{eq,8h} &= LA_{eq} + \text{correction factor} \\ &= 85 + 2.76 = 87.76 \text{ dB(A)} \\ &\text{rounded to } 88 \text{ dB(A)} \end{aligned}$$

# Appendix 4 – Occupation codes

100000	Management and supervisory
<b>110000</b>	<b>General management occupations</b>
	Financial manager
	Personnel manager
	Sales manager
	Purchasing manager
<b>120000</b>	<b>Engineering occupations</b>
121000	Mining engineer
122000	Mechanical engineer
123000	Civil engineer
124000	Chemical engineer
125000	Metallurgical engineer
126000	Petroleum engineer
129000	Engineer NOC
<b>130000</b>	<b>Professional and related occupations</b>
131000	Chemist
132000	Geologist or geological assistant
133000	Metallurgist
134000	Environmental scientist or assistant
135000	Surveyor
136000	Draftsman
137000	Health or medical occupations
	- Doctor
	- Occupational health nurse
	- First aid attendant
138000	Industrial hygienist
139000	Professional and related NOC
<b>140000</b>	<b>Management or administration services</b>
141000	Security officer
142000	Safety officer
143000	Training officer
144000	Personnel officer
145000	Clerical or secretarial occupations
146000	Township or accommodation occupations
	- Caretaker
	- Housekeeper or cleaner
	- Handyman
	- Gardener
	- Groundsman
	- Township or accommodation occupation NOC
147000	Catering occupations
	- Cook
	- Catering assistant
	- Kitchen hand
	- Canteen attendant
	- Catering occupations NOC

148000 Cleaning or laundering occupations  
149000 Management or administrative services  
occupations NOC

**150000 Mine management occupations**

151000 Mine manager  
152000 Underground manager  
153000 Assistant underground manager  
154000 Under manager  
155000 Mine management occupations NOC

**160000 Supervisory occupations**

161000 Deputy (coal)  
162000 Foreman or shift boss underground  
163000 Foreman or shift foreman surface  
164000 Overman (coal)  
165000 Supervisor

**200000 Underground production and services**

**210000 Miners production or development (underground)**

211000 Contract miner  
212000 Coal miner (underground)  
213000 Non-contract miner (underground)  
214000 Trainee miner  
215000 Miner NOC  
216000 Miner's assistant

**220000 Long hole drill and blast occupations (underground)**

221000 Long hole drill operator  
222000 Long hole driller's assistant  
223000 Shotfirer  
224000 Shotfirer's assistant (charging)

**230000 Diamond drillers or raiseborers**

231000 Diamond drill operator  
232000 Diamond driller's assistant  
233000 Raiseborer operator  
234000 Raiseborer's assistant

**240000 Loading or transport occupations (underground)**

241000 Diesel loader operator  
242000 Mechanical bogger driver  
243000 Scraper operator  
244000 Locomotive driver  
245000 Truck driver  
246000 Plant operator  
247000 Underground personnel transport driver  
248000 Conveyor attendant or operator  
249000 Trucker

**250000 Ground or roof support occupations (underground)**

251000 Timberman  
252000 Roofbolter  
253000 Hydraulic fill operator

<b>260000</b>	<b>Services occupations (underground)</b>
261000	Ventilation occupations
262000	Tracklayer or platelayer
263000	Pipefitter
264000	Pumpman or pump attendant
265000	Nipper, salvageman or utilityman
266000	Underground crushing operator
266100	Grizzlyman or pass runner
267000	Underground labourer or tool carrier
268000	Sanitaryman
269000	Underground services occupations NOC

<b>270000</b>	<b>Underground winding and hoisting occupations</b>
271000	Winding engine driver
272000	Hoist driver
273000	Platman
274000	Skipman
275000	Braceman
276000	Brakeman
277000	Onsetter
279000	Winding and hoisting occupations NOC

## 300000 Mining production and services (surface)

<b>310000</b>	<b>Blast hole drilling surface</b>
311000	Blast hole drill operator
312000	Blast hole drill operator's assistant
313000	Air track or crawl air driller
314000	Sniper drill operator (rubber tyred)

<b>320000</b>	<b>Charging and blasting (surface)</b>
321000	Powder monkey, leading hand or shotfirer
322000	Powder truck driver
323000	Powder crew labourer

<b>330000</b>	<b>Exploration drilling (surface)</b>
331000	Driller
332000	Driller's assistant

<b>340000</b>	<b>Excavation equipment operators (surface)</b>
341000	Bucketwheel operator
342000	Bucketwheel operator's assistant
343000	Dragline operator
344000	Rope shovel operator
346000	Hydraulic excavator operator
347000	Dredge operator
348000	Front end loader operator
349000	Excavation equipment operator NOC

<b>350000</b>	<b>Mobile plant operator (surface)</b>
351000	Bulldozer operator
352000	Grader driver
353000	Backhoe operator
354000	Scraper driver
359000	Mobile plant operator NOC

**360000 Driving occupations (surface)**

361000	Haulage truck driver
362000	Water truck driver
363000	Explosives truck driver
364000	Fuel, grease or service truck driver
365000	Hiab truck driver
366000	Passenger vehicle driver or bus driver
367000	Equipment transport driver
369000	Driver NOC

**370000 Open cut service occupations**

371000	Greaser or oiler
372000	Quarry labourer or labourer
373000	Fuel and lubrication serviceman
374000	Wash bay operator
375000	Dump spotter
376000	Weighbridge operator

**400000 Ore treatment occupations**

**410000 Processing plant occupations**

411000	Processing plant operator
412000	Processing plant serviceman
413000	Processing plant utility worker

**420000 Mobile plant occupations**

421000	Front end loader operator
422000	Mobile plant operator NOC

**430000 Final product handling or transport occupations**

431000	Final product packer, loader or dumper operator
432000	Final product warehouse operator
433000	Final product handling or transport NOC

**440000 Sampling, assay, laboratory occupations**

441000	Laboratory technician, assistant or analyst
442000	Sample preparation operator
443000	Sampler or sample plant operator

**500000 Railway operations occupations**

**510000 Railway operator NOC**

**520000 Locomotive crews**

521000	Locomotive driver
522000	Observer
523000	Trainee observer
524000	Shunter locomotive driver

**530000 Track laying or maintenance**

531000	Ganger
532000	Platelayer
533000	Track maintenance machine operator
534000	Track labourer

600000 Metal working processing trades

**610000 Sheet metal trades**

611000 Metal patternmaker  
612000 Sheet metal worker  
613000 Coppersmith  
614000 Guillotine operator  
615000 Millwright

**620000 Metal machining trades**

621000 Metal machinist  
622000 Fitter or turner

**630000 Fitter mechanical**

631000 Fitter  
632000 Fitter — welder  
633000 Fitter — diesel  
634000 Fitter — pipe

**640000 Structural steel trades**

641000 Boilermaker or welder  
642000 Boilermaker  
643000 Welder

**650000 Metal trades apprentices**

651000 Sheet metal apprentice  
652000 Metal machining apprentice  
653000 Fitter's apprentice  
654000 Boilermaker's apprentice  
659000 Apprentice NOC

**660000 Trades assistant**

**690000 Metal trades**

691000 Tool and dye setter  
692000 Saw setter  
693000 Electroplater  
694000 Blacksmith  
695000 Shipwright  
696000 Instrument artificer  
697000 Lamp room mechanic or assistant  
698000 Toolmaker  
699000 Drill doctor

700000 Electrical or electronic trades

**710000 Electrical trades**

711000 Linesman  
712000 Electrical fitter  
712100 Cable splicer  
713000 Electrical mechanic  
714000 Automotive electrician  
715000 Refrigeration mechanic  
716000 Air conditioning mechanic  
717000 Electrical installer

	718000	Lift mechanic
	719000	Electrician NOC
<b>720000</b>		<b>Electronic trades</b>
	721000	Radio technician
	722000	Telecommunication technician
	723000	Telecommunication trainee
	724000	Signals technician
	725000	Instrument technician
<b>730000</b>		<b>Electrical or electronic apprentices</b>
	731000	Electrical apprentice
	732000	Electronic apprentice
<b>790000</b>		<b>Electrical trades assistant</b>
<b>800000</b>		<b>Miscellaneous trades or utilities</b>
<b>810000</b>		<b>Construction trades</b>
	811000	Bricklayer
	812000	Carpenter or joiner
	813000	Painter
	814000	Plasterer or tiler
	815000	Plumber or drainer
	816000	Rigger or ropesplicer
	817000	Scaffolder
	818000	Construction trades assistant
<b>820000</b>		<b>Conveyor belt repair occupations</b>
	821000	Belt repairer
	822000	Belt repairers assistant
	823000	Trainee belt repairer
	824000	Rubber repairer NOC
<b>830000</b>		<b>Motor or engine trades</b>
	831000	Motor mechanic
	832000	Diesel motor mechanic
	833000	Brake mechanic
	834000	Tyre fitter
	835000	Panel beater
	836000	Spray painter
	837000	Mechanic NOC
	838000	Trades assistant
	839000	sand blaster
<b>840000</b>		<b>Power plant operators</b>
	841000	Power plant engine driver
	842000	Power plant trainee engine driver
	843000	Power plant greaser
	844000	Boiler attendant
	845000	Fireman
<b>850000</b>		<b>Water treatment plant operator</b>
<b>860000</b>		<b>Waste disposal equipment operator</b>



	<b>870000</b>	<b>Gas supply service operator</b>
	<b>890000</b>	<b>Utility operator NOC</b>
900000		<b>Material handling – stores or warehouse occupations</b>
	<b>910000</b>	<b>Crane driving occupations</b>
	911000	Mobile crane driver
	912000	Tower crane driver
	913000	Overhead crane driver (cabin controlled)
	914000	Crane driver NOC
	915000	Dogman or cranechaser
	<b>920000</b>	<b>Fork lift operator</b>
	<b>930000</b>	<b>Storemen NOC</b>
	931000	Toolstore attendant

*NOC = not otherwise classified*

# Appendix 5 – Location codes

## 100 Underground workplaces

### 110 Access, travelling or haulage ways

- 111 Brace or winder building
- 112 Shaft
- 113 Plat
- 114 Decline, adit or drift
- 115 Haulroad or level
- 116 Conveyor road
- 117 Ladderway
- 118 Return airways

### 120 Underground production or development areas

- 121 Underground face area (coal)
- 122 Underground stope
- 125 Loading pocket
- 126 Raise (development)
- 127 Decline or winze (development)
- 128 Level (development)
- 129 Capital (development)

### 130 Underground workshop

### 140 Pump chamber

### 150 Underground storage areas

- 151 Fuel storage
- 152 Explosives magazine
- 153 Underground stores — general

### 160 Underground ore or waste dumping

- 161 Ore or waste tip or pass area
- 162 Grizzly
- 163 Millhole

### 170 Underground crushing area

### 180 Ancillary locations

- 181 Crib room
- 182 Latrine

### 190 Underground

## 200 Open pit production or development areas

### 210 Face loading area

### 220 Bench areas not haul road

- 221 Drill pattern area
- 222 Heavy vehicle park up area

- 230 Haul road**
  - 231 Haul road — level
  - 232 Haul road — ramp or incline
- 240 Waste dump area**
- 250 Ore tipping area**
- 260 In pit crushing**
  - 261 In pit crusher area
  - 262 In pit conveyors
- 270 Stockpile — run of mine**
- 280 Salt production areas**
- 290 Open cut NOC**
  - 291 Dredge
  
- 300 Surface work areas — general**
  - 310 Mine access road (not haul road)**
  - 320 Park up area, heavy vehicles or plant**
  - 330 Warehouse or stores**
  - 340 Explosives magazine**
  - 350 Fuel storage area**
  - 360 Laboratory**
  - 370 Storage yard or rebuild area**
  - 380 Lube bay or service bay**
    - 381 Wash down area
  - 390 Surface general area**
  
- 400 Treatment plant or ore processing**
  - 411 Process control room**
  - 413 Crushing, screening or conveyor**
  - 416 Heap, vat or insitu leaching**
  - 419 Grinding or classification**
  - 422 Gravity concentration or magnetic separation**
  - 425 Flotation**
  - 428 Leaching**
  - 431 Solvent extraction, scrubber or stripper**
  - 434 Filter, press or wet screening**
  - 437 Thickening or clarification**

- 439 **Crystallisation, nucleation or ion exchange**
- 441 **Electrowinning or cell house**
- 444 **Smelter, roaster or furnace area**
- 447 **Gold room and elution facility**
- 451 **Tailings storage facility**
- 454 **Product packaging or storage**
- 457 **Sample plant or station**
- 461 **Reagent or raw material storage area**
- 464 **Reagent or raw materials preparation plant**
- 467 **Water treatment plant**
- 471 **Processing plant other**
  
- 500 **Crushed ore areas**
  - 510 **Stockpiles**
    - 511 Stockpile access road
  - 520 **Train loading or unloading**
    - 521 Train loader or loading area
    - 522 Train unloader or tippler area
  - 530 **Stacker reclaimer area**
  - 540 **Stacker or reclaim conveyor**
  - 550 **Wharf area**
    - 551 Shiploader wharf
    - 552 Conveyors wharf
  
- 600 **Workshop surface**
  - 610 **Workshop heavy equipment**
  - 620 **Workshop elect or instruments**
  - 630 **Workshop railway**
  - 640 **Workshop auto or light vehicles**
  - 650 **Workshop boilermakers**
  - 660 **Workshop painters or carpenters**
  - 670 **Workshop tyre fitting**
  - 680 **Workshop belt repairs**
  - 690 **Workshop NOC**

- 700 Railways
  - 710 Main lines**
    - 711 Main line — on track
    - 712 Main line — off track
  - 720 Sidings**
    - 721 Siding — on track
    - 722 Siding —off track
  - 730 Railway access road**
  - 740 Railway yard**
  
- 800 Power generation plant
  - 810 Control room**
  - 820 Distribution or sub-station**
  - 830 Engine room**
  
- 900 Administration areas
  - 910 Offices or administration building**
  - 920 Crib room, canteen or mess**
  - 930 Showers or change room**
  - 940 Lamproom**
  - 950 Car park**
  - 960 Pathways**
  - 970 Gardens**
  - 990 Administration NOC**

*NOC = not otherwise classified*