



MINING QUALIFICATIONS AUTHORITY

SCARCE SKILLS

GUIDE

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1. INTRODUCTION

This guide to understanding and identifying scarce skills is aimed at those who wish to identify and address scarce skills within the Mining and Mineral Sector (MMS). The information provided in this guide could assist Skills Development Facilitators and others to make better decisions about the numbers and types of persons to be trained.

In this guide serious skill shortages in key occupations within MMS are evident. The MQA's interventions reflect the organisation's alignment to addressing the skills shortages and commitment to skills development and transformation.

As part of its skills development research function the Mining Qualifications Authority (MQA) collects data on an annual basis through workplace skills plans and annual training reports from employers on occupations that are considered scarce skill occupations by the employers in the sector.

The data collection process has been progressively improved and refined each year, in particular over the period 2007 to 2009 as the sector has implemented the skills development occupational coding system developed by the Department of Higher Education and Training (DHET).

This coding system, known as the Organising Framework for Occupations (OFO), requires a six digit code to be allocated to all prevailing and future occupations that exist in the South African Labour Market. The coding system is a critical part of the emerging National Occupational Pathways Framework (NOPF) that already includes descriptors, tasks and alternate titles for all prevailing occupations.

The successful integration of the OFO into MQA member organisations data will enhance the accuracy in identifying of scarce skill occupations in the sector.

The data collected by the MQA on scarce skill occupations in the sector is consolidated into a single list by occupation and published/ distributed each year on the 31 August. The consolidated list for the last three years as published on 31 August 2009 is attached as *Annexure A*. The list shows a marked decline in scarce skill occupations needed in the 2009 year, most likely due to the impact of the global economic recession on the sector.

Each Sector Education and Training Authority (SETA) is required to submit this list as part of a Sector Skills Plan update to the DHET on the 31 August each year to allow the DHET to compile a national scarce skill occupation list.

2. WHAT IS A SCARCE SKILL?

Scarce skills refer to those **occupations** in which there is a scarcity or shortage of qualified and experienced people. This scarcity can be current or anticipated in the future, and is usually due to the fact that either people with these skills are simply not available, or they are available but they do not meet the organisation's employment criteria.

Assessing skill shortages – Indicators and drivers

The first step in building an understanding of scarce and critical skills is to foster a better understanding of the information and indicators that are useful to identify the presence of skill shortages and how these should be interpreted in the broader identification of skills needs and skills shortages. Implicit in the Department of Higher Education and Training's

definitions for scarce and critical skills, are a set of indicators which can be measured to determine the existence and severity of skills shortages.

Internationally the most commonly used are

- Vacancy fill rates, i.e. the number of vacancies tracked through job advertisements benchmarked against the number of unemployed persons in the occupational category; the length of time it takes to recruit and fill a job vacancy;
- Vacancy volumes, i.e. the number of same or similar job vacancies at industry, sector or national level;
- Wage pressures, i.e. wage premiums for some job/occupational categories, wage inflation linked to enterprises competing to fill vacancies from a small labour pool of suitably skilled people or high levels of “poaching”;
- Labour market competition, i.e. pull to other sectors, other countries;
- Evidence that demand for the same skills will be maintained over time, i.e. industry, sector or other sector growth projections;
- Information about the length of time it will take the education and training system to address the identified skills shortage;
- Information about the responsiveness of the industry to address the identified skills shortage, e.g. long-term vacancies but no engagement in training and/or no wage premiums to secure the skills advertised.

Relative and absolute scarcity

Scarce skills can arise from one or a combination of the following, grouped as relative or absolute:

Relative scarcity (suitably skilled people available but do not meet other employment criteria):

For example,

- Geographical location, i.e. people are unwilling to work outside of urban areas;
- Industry attractiveness, i.e. suitably skilled people are unwilling to work in particular industries, because they perceive that industry to be in decline or unsafe or otherwise unattractive.
- Equity considerations, i.e. there are candidates with the requisite skills (qualifications and experience) from specific groups available to meet the skills requirements of firms and enterprises;
- Replacement demand would reflect a relative scarcity if there are people in education and training (formal and work-place) who are in the process of acquiring the necessary skills (qualification and experience), but where the lead time will mean that they are not available in the short term to meet replacement demand. This may also reflect employer demand for qualified and experienced people to fill occupations, i.e. people with suitable qualifications are available to enter occupations but performance at the employment level requires a certain amount of work experience which such graduates have not yet acquired.

Absolute scarcity (suitably skilled people are not available in the labour market):

- A new or emerging occupation, i.e. there are few, if any, people in the country with the requisite skills (qualification and experience) and education and training providers have yet to develop learning programmes to meet the skills requirements; and

- Firms, sectors and even the country are unable to implement planned growth strategies and experience productivity, service delivery and quality problems directly attributable to a lack of skilled people.
- Replacement demand would reflect an absolute scarcity where there are no people enrolled or engaged in the process of acquiring the skills that need to be replaced

Let's look at some examples:

- If you cannot recruit any Ore Reserve Managers because there are simply none available – no-one responds to your adverts, you have used a recruitment agency which has been unsuccessful etc – then ore reserve management is an absolute scarce skill.
- If you do get people responding to your recruitment advert, but none of the potential applicants wants to relocate to the small rural town in which your organisation is located, then ore reserve management is a relatively scarce skill, by reasons of geographic location.
- If other types of mines are able to recruit Ore Reserve Managers, but no one wants to work in the coal mining sub-sector because there have recently been large scale retrenchments, then ore reserve management is a relatively scarce skill, by reasons of industry attractiveness.
- If you have determined, in your Employment Equity Plan, that you require a black woman in the position of Ore Reserve Manager, and only white people or men respond to your recruitment adverts, then ore reserve management is a relatively scarce skill, by reasons of employment equity.
- If you cannot recruit anyone to the position, but you have two young women doing work experience in the ore reserve department who will only finish their degrees in two year's time, then ore reserve management is a relatively scarce skill, by reason of long training lead time.

Table 1: Summary of absolute and relative scarcity

Definition		Indicators and Drivers
<p><u>SCARCE SKILLS</u></p> <p><i>Occupations</i> in which there is a scarcity of qualified and experienced people, currently or anticipated in the future, either:</p> <p>(a) because such skilled people are not available or</p> <p>(b) they are available but do not meet employment criteria</p>	<p>Absolute scarcity: suitably skilled (qualified and experienced) people are not available</p>	New or emerging occupation
		Hard-to-fill vacancies
		Replacement demand e.g. Age, chronic ill-health
		Regulatory requirements e.g. Statutory registration
	<p>Relative scarcity: suitably skilled (qualified and experienced) people are available but do not meet other employment criteria</p>	Geographical location
		Industry attractiveness
		Employment Equity considerations
		Education and training pipeline delays linked to replacement demand

3. EVALUATION OF DEMAND AND SUPPLY OF SKILLS IN THE MMS

The overall situation with regard to the demand for and supply of skills within the MMS in the specific occupational categories is summarised in Table 2. The table summarises the evidence of imbalances in the current labour market, the special factors that influence the demand for skills and the main sources of education and training. The table also contains

comments on the overall responsiveness of the education and training system to the demand for skills and the problems that still remain.

Table 2: Summary of demand for and supply of skills in the Mining and Mineral Sector

Occupational Group	Imbalances in the labour market	Special factors influencing demand	Main sources of education and training	Responsiveness of supply to demand	Problems that still remain
Managers	<p>Small number of scarce skills identified by employers</p> <ul style="list-style-type: none"> ▪ Production/Operations Managers ▪ Mine overseers 	<ul style="list-style-type: none"> ▪ Replacement due to retirement ▪ Racial profile has changed, but need for transformation may continue at top management levels 	<ul style="list-style-type: none"> ▪ Tertiary education and MBA courses ▪ Management development courses ▪ Special executive training programmes 	<ul style="list-style-type: none"> ▪ Training opportunities sufficient 	<ul style="list-style-type: none"> ▪ Availability of HDSAs with required skills combinations
Professionals	<p>Indications of shortages (Long-term vacancies and low unemployment)</p> <p>Vacancies for</p> <ul style="list-style-type: none"> ▪ Engineers: Electrical ▪ Engineers: Mechanical ▪ Engineers: Mining ▪ Geologists ▪ Metallurgists ▪ Surveyors 	<ul style="list-style-type: none"> ▪ Effective utilisation of professionals at mining house level may contain the growth in demand ▪ Need to change racial profile ▪ Movement out of Sector 	<ul style="list-style-type: none"> ▪ Higher education institutions ▪ FET institutions for Jewellery Manufacturing 	<ul style="list-style-type: none"> ▪ Total number of graduates insufficient for growing economy ▪ Racial profile of new graduates is changing rapidly but it will take time to change the pool of professionals available to the Sector ▪ Relatively few women available in professional categories relevant to the Sector, but more women graduating in relevant fields ▪ Existing 	<ul style="list-style-type: none"> ▪ Mathematics and science at school level ▪ General shortages across the economy ▪ Shortages may be reduced in short term by economic recession, but may increase again if economy starts growing

Occupational Group	Imbalances in the labour market	Special factors influencing demand	Main sources of education and training	Responsiveness of supply to demand	Problems that still remain
				employees and new entrants supported by bursaries to obtain qualifications	
Technicians and Trades Workers	<p>Indications of shortages (Long-term vacancies and low unemployment)</p> <p>Vacancies for</p> <ul style="list-style-type: none"> ▪ Mining Technicians ▪ Electrical Engineering Technicians ▪ Mine Surveyors ▪ Draughtspersons ▪ Diesel Mechanics ▪ Electricians ▪ Fitters ▪ Fitters and Turners ▪ Boilermakers ▪ Riggers ▪ Millwrights ▪ Welders ▪ Jewellers 	<ul style="list-style-type: none"> ▪ Need to change racial profile ▪ Absolute scarcity experienced in labour market 	<ul style="list-style-type: none"> ▪ Higher education institutions ▪ FET institutions for Jewellery Manufacturing ▪ Apprenticeships ▪ Learnerships 	<ul style="list-style-type: none"> ▪ Total number of graduates at universities of technology has grown substantially ▪ Racial profile is changing ▪ More women are graduating in the relevant fields ▪ Existing employees and new entrants supported by bursaries to obtain qualifications ▪ Long training periods inhibit responsiveness 	<ul style="list-style-type: none"> ▪ Mathematics and science at school level ▪ General shortages across the economy ▪ Economic recession may influence employers' ability to take on new learners on learnerships – may have a long-term effect on supply ▪ Shortages may be reduced in short term by economic recession, but may increase again if economy starts growing
Clerical and Administrative Workers	Over supply of people with matric		<ul style="list-style-type: none"> ▪ In-service training 		

Occupational Group	Imbalances in the labour market	Special factors influencing demand	Main sources of education and training	Responsiveness of supply to demand	Problems that still remain
Sales Workers	Over supply of people with matric		<ul style="list-style-type: none"> ▪ In-service training 		
Machinery Operators and Drivers	<ul style="list-style-type: none"> ▪ Drillers ▪ Miners ▪ Earthmoving Plant Operators ▪ Loader Operators 	<ul style="list-style-type: none"> ▪ High replacement demand due to mortality (occupational diseases, accidents, HIV/AIDS) ▪ Higher levels of literacy required 	<ul style="list-style-type: none"> ▪ Learnerships ▪ Skills programmes ▪ In-service training ▪ ABET programmes 	<ul style="list-style-type: none"> ▪ Skills programmes very suitable – address technical skills, workplace realities (little time for training) and health and safety requirements. ▪ Large-scale uptake of skills programmes ▪ Large-scale involvement of Sector in ABET 	<ul style="list-style-type: none"> ▪ Need for assessment of qualification levels (RPL) ▪ Impact of ABET is still slow
Elementary Workers	<ul style="list-style-type: none"> ▪ Most vulnerable in terms of retrenchments – unemployment expected to increase 	<ul style="list-style-type: none"> ▪ High replacement demand due to mortality (occupational diseases, accidents, HIV/AIDS) ▪ Higher levels of literacy required 	<ul style="list-style-type: none"> ▪ Skills programmes ▪ In-service training ▪ ABET programmes 	<ul style="list-style-type: none"> ▪ Skills programmes very suitable – address technical skills, workplace realities (little time for training) and health and safety requirements. ▪ Large-scale uptake of skills programmes 	<ul style="list-style-type: none"> ▪ Need for assessment of qualification levels (RPL) ▪ Impact of ABET is still slow ▪ Need training to soften the impact of retrenchments

Occupational Group	Imbalances in the labour market	Special factors influencing demand	Main sources of education and training	Responsiveness of supply to demand	Problems that still remain
				Large-scale involvement of Sector in ABET	

Source: Sector Skills Plan: August 2009 Update

4. SCARCE SKILLS WITHIN THE MMS

The information on scarce skills was obtained by analysing the scarce skills table of the workplace skills plans (WSPs) submitted for Year 2009/2010 (Year 10). These documents were submitted in June and July 2009 and reflect the situation in the Sector at the time of preparing this SSP update. Data from 472 levy paying companies operating in the Mining and Minerals Sector (MMS) were analysed. The information was also extrapolated to the total sector by weighting the data.¹

The positions that could not be filled due to the scarcity of skills amounted to 1 234 – a marked decrease from previous years. The positions in which scarcity existed amounted to approximately 0.3% of total employment in 2009 as apposed to the 1,4% of total employment in the previous year.

Of the positions that employers reported as unfilled due to scarcity 26% were ascribed to a lack of suitably skilled people in the labour market (absolute scarcity), while 60% were unfilled because of relative scarcity. Relative scarcity could result from people's unwillingness to work outside urban areas or a particular industry or it could mean that there were people in the process of acquiring the necessary skills but due to the length of their training they would not be available in the short term. A lack of candidates with the requisite skills from the designated groups (blacks, women, people with disabilities) could also result in a relative scarcity of particular skills.

Most of the skills shortages occurred in the occupational categories Technicians and Trade Workers (665 vacant positions), Professionals (267 vacant positions) and Machine Operators and Drivers (227 vacant positions). The top 20 scarce skills (August 2009) are listed below. For a complete list of scarce skills refer to Annexure A.

Occupation Code	Occupation	Total Number required
1.Managers		
	N/A	
2.Professionals		
234401	Geologist	59
233601	Mining Engineer (excluding Petroleum)	42
233502	Mechanical Engineer	34
233301	Electrical Engineer	24
234902	Metallurgist	21
	Sub total	180
3.Technicians and Trades workers		
321202	Mining Technician	114
323501	Fitter (General)	107
342305	Electrician (General)	90

¹ The levy amounts paid by the respective companies in the 2008/2009 financial year was used as a proxy of their employment size in the calculation of weights.

323202	Jeweller	87
322301	Millwright	62
399401	Diesel Motor Mechanic	37
323304	Fitter and Turner	35
312903	Precision Instrument Maker and Repairer	34
312901	Welder / Welder (First Class)	31
323201	Maintenance Planner	20
322303	Metal Fabricator	16
	Sub total	633
7.Machinery Operators & Drivers		
712202	Miner (Non-Metalliferous)	75
712201	Driller	36
712301	Engineering Production Systems Worker	25
711104	Stone Processing Machine Operator	20
	Sub total	156
8.Elementary Workers		
	N/A	
Total		969

In the occupational category Professionals the specific occupations with the highest numbers of vacancies were Geologists (59 positions), Mining Engineers (42 positions), Mechanical Engineers (34 positions), Electrical Engineers (24 positions), Metallurgists (21 positions) and Surveyors (14 positions).

In the occupational category technicians and trade workers, most of the positions that companies had difficulty filling, were for Mining Technicians (114 positions), Fitters (107 positions), Electricians (90 positions), Jewellers (87 positions), Millwrights (62 positions), Diesel Motor Mechanics (37 positions), Fitters and Turners (35 positions), Precision Instrument Makers and Repairers (34 positions) and Welders (31 positions).

In the machine operators and drivers category, most of the hard-to-fill vacancies were for Miners (75 positions), Drillers (36 positions), Engineering Production Systems Workers (25 positions) and Stone Processing Machine Operators (20 positions).

In summary most of the deficiencies in the skills of people in the MMS were identified in people who were employed in engineering and technical occupations. Furthermore the sector's struggle to find qualified people for certain positions (scarce skills) was confirmed by the number of employees in similar positions in the sector who needed "top-up" skills i.e. employed people who were not fully qualified and who needed to be trained on-the-job.

5. MQA FOCUS ON SCARCE SKILLS

As the sector's skills development intermediary, the MQA has two key responsibilities in respect of identifying and reporting scarce and critical skills across the sector. The first is to provide a reliable set of skill shortage signals to the sector. The second is to direct strategic interventions and activities to address these shortages.

In respect of the second, the MQA has a set of support strategies in place to support the development of skills against the identified MMS scarce and critical skills which include:

- Development and registration of Unit Standards and Qualifications;
- Development and registration of Learnerships and Skills Programmes for the registered qualifications and unit standards;
- Development and availability of learning materials;
- Training and registration of assessors and moderators able to assess and grant credit to learners against the registered unit standards and qualifications;
- Accreditation of training providers;
- Information management system and database to issue certificates of achievement to successful learners;
- Incentivising delivery of and participation in learnerships and Adult Basic Education and Training (ABET) through discretionary grants; and
- Supporting targeted programmes including bursaries, graduate development programmes, etc.

The table below shows the top scarce skills over the last three years and the interventions in place by the MQA to address the shortages.

Table 4: Scarce occupations and supply pipeline

Occupation	Average Demand - 2007 to 2009	Supply Pipeline
Mining Technician	464	HET-Bursary & Internship
Driller	355	FET - Learnership
Electrician (General)	305	FET - Learnership
Diesel Motor Mechanic	228	FET - Learnership
Geologist	209	HET-Bursary & Internship
Miner	189	FET - Learnership
Fitter (General)	188	FET - Learnership
Millwright	174	FET - Learnership
Mining Engineer (excluding Petroleum)	159	HET-Bursary & Internship
Mechanical Engineer	122	HET-Bursary & Internship
Fitter and Turner	119	FET - Learnership
Jeweller	109	FET - Learnership
Electrical Engineer	82	HET-Bursary & Internship
Welder / Welder (First Class)	70	FET - Learnership
Metallurgist	63	HET-Bursary & Internship
Stone Processing Machine Operator	48	FET - Learnership
Maintenance Planner	19	FET - Learnership
Metal Fabricator	17	FET - Learnership
Precision Instrument Maker and Repairer	11	FET - Learnership
Engineering Production Systems Worker	8	HET-Bursary & Internship

6. CONCLUSION

The skills priorities that guide the interventions of the MQA are influenced by a variety of factors, one of the key being scarce skills within the sector.

ANNEXURE A: SCARCE SKILLS 2007-2009

Category	OFO Code	Occupation Description	2007 Need	2008 Need	2009 Need
3-Technicians & Trades	312903	Mining Technician	845	432	114
3-Technicians & Trades	323201	Fitter (General)	78	380	107
3-Technicians & Trades	341101	Electrician (General)	212	613	90
3-Technicians & Trades	399401	Jeweller	173	68	87
7-Machinery Operators & Drivers	712202	Miner	146	345	75
3-Technicians & Trades	323501	Millwright	79	381	62
2-Professionals	234401	Geologist	324	245	59
2-Professionals	233601	Mining Engineer (excluding Petroleum)	239	197	42
3-Technicians & Trades	321202	Diesel Motor Mechanic	137	509	37
7-Machinery Operators & Drivers	712201	Driller	0	1029	36
3-Technicians & Trades	323202	Fitter and Turner	138	185	35
2-Professionals	233502	Mechanical Engineer	156	177	34
3-Technicians & Trades	323304	Precision Instrument Maker and Repairer	0	0	34
3-Technicians & Trades	322303	Welder / Welder (First Class)	0	179	31
7-Machinery Operators & Drivers	712301	Engineering Production Systems Worker	0	0	25
2-Professionals	233301	Electrical Engineer	69	152	24
2-Professionals	234902	Metallurgist	105	63	21
3-Technicians & Trades	312901	Maintenance Planner	9	28	20
7-Machinery Operators & Drivers	711104	Stone Processing Machine Operator	0	125	20
3-Technicians & Trades	322301	Metal Fabricator	4	30	16
8-Elementary	821701	Construction Rigger	13	50	15
1-Managers	133503	Production / Operations Manager (Mining)	168	284	14
2-Professionals	232202	Surveyor	171	137	14

7-Machinery Operators & Drivers	731301	Train Driver	0	8	14
2-Professionals	234201	Chemist	0	34	12
7-Machinery Operators & Drivers	711102	Concrete Products Machine Operator	0	0	11
2-Professionals	251302	Occupational Health and Safety Advisor	25	22	10
3-Technicians & Trades	342305	Electronic Instrument Trades Worker (Special Class)	0	0	10
2-Professionals	233101	Chemical Engineer	1	50	9
7-Machinery Operators & Drivers	721206	Loader Operator	0	283	9
1-Managers	133201	Engineering Manager	16	46	8
7-Machinery Operators & Drivers	712101	Crane, Hoist or Lift Operator	4	69	8
8-Elementary	839101	Metal Engineering Process Worker	0	0	8
1-Managers	133202	Engineering Maintenance Manager	0	2	7
7-Machinery Operators & Drivers	712203	Shot Firer	22	2	7
7-Machinery Operators & Drivers	712102	Winding Engine Driver	0	0	6
7-Machinery Operators & Drivers	721913	Tunnelling Machine Operator	0	0	6
7-Machinery Operators & Drivers	733101	Truck Driver (General)	13	80	5
2-Professionals	232303	Jewellery Designer	0	7	4
2-Professionals	232601	Urban and Regional Planner	0	0	4
2-Professionals	251901	Health Promotion Officer	0	11	4
3-Technicians & Trades	399203	Power Generation Plant Controller	0	0	4
8-Elementary	821904	Mining Support Worker	2648	90	4
8-Elementary	899201	Deck Hand	0	0	4
1-Managers	111402	General Manager Public Service	0	0	3
2-Professionals	221204	Internal Auditor	0	1	3
2-Professionals	223302	Technical Instructor / Trainer	0	0	3
2-Professionals	225103	Marketing Practitioner	0	5	3
2-Professionals	233105	Metallurgical Engineer	0	31	3
2-Professionals	233201	Civil Engineer	4	60	3
2-Professionals	234303	Environmental Research Scientist	0	0	3
2-Professionals	251301	Environmental Health Officer	0	28	3
3-Technicians & Trades	313101	Hardware Technician	0	0	3
3-Technicians & Trades	321101	Automotive Electrician	4	0	3
7-Machinery Operators & Drivers	712902	Bulk Materials Handling Plant Operator	0	0	3
8-Elementary	899906	Mechanic's Assistant	0	0	3
1-Managers	132201	Finance Manager	1	16	2
2-Professionals	223101	Human Resource Advisor	17	21	2
3-Technicians & Trades	311903	Environmental Science Technician	0	5	2
3-Technicians & Trades	312302	Electrical Engineering Technician	72	19	2
3-Technicians & Trades	399901	Diver	0	0	2
1-Managers	111101	Chief Executive Officer / Managing Director (Enterprise / Organisation)	0	2	1
1-Managers	111201	Corporate General Manager	0	0	1

1-Managers	132102	Resources Manager	0	0	1
1-Managers	132301	Personnel / Human Resource Manager	3	4	1
1-Managers	133101	Construction Project Manager	0	0	1
1-Managers	133502	Production / Operations Manager (Manufacturing)	0	0	1
1-Managers	133504	Operations Manager	0	18	1
2-Professionals	221101	Accountant (General)	15	42	1
2-Professionals	223301	Training and Development Professional	78	41	1
2-Professionals	223303	Training Assessor	0	0	1
2-Professionals	233501	Industrial Engineer	6	8	1
2-Professionals	234508	Zoologist	0	0	1
2-Professionals	263202	ICT Support Engineer	0	0	1
2-Professionals	272405	Archaeologist	0	0	1
3-Technicians & Trades	312201	Civil Engineering Draftsperson	27	28	1
3-Technicians & Trades	312501	Mechanical Engineering Draftsperson	3	54	1
3-Technicians & Trades	312502	Mechanical Engineering Technician	145	79	1
3-Technicians & Trades	312902	Metallurgical or Materials Technician	20	0	1
3-Technicians & Trades	331101	Bricklayer	0	1	1
3-Technicians & Trades	342101	Air-conditioning and Refrigeration Mechanic	0	1	1
7-Machinery Operators & Drivers	721204	Excavator Operator	4	146	1
7-Machinery Operators & Drivers	732101	Delivery Driver (Vehicle)	0	0	1
1-Managers	131102	Sales and Marketing Manager	0	3	0
1-Managers	132501	Research and Development Manager	9	9	0
1-Managers	133601	Supply and Distribution Manager	0	3	0
1-Managers	136303	Team manager	1	0	0
1-Managers	136304	Foreman	202	0	0
1-Managers	139902	Environmental manager	0	8	0
2-Professionals	221102	Management Accountant	0	18	0
2-Professionals	223102	Recruitment Consultant/officer	0	2	0
2-Professionals	223301	Training and Development Professional	0	41	0
2-Professionals	224103	Statistician	0	2	0
2-Professionals	224301	Economist	2	18	0
2-Professionals	224502	Valuer	0	5	0
2-Professionals	224701	Management Consultant	1	3	0
2-Professionals	224703	Skills Development Facilitator	0	9	0
2-Professionals	224902	Liaison Officer	0	1	0
2-Professionals	231101	Aeroplane Pilot	0	1	0
2-Professionals	231203	Ship's Master	3	0	0
2-Professionals	233102	Chemical Engineering Technologist	0	11	0
2-Professionals	233202	Civil Engineering Technologist	45	4	0
2-Professionals	233302	Electrical Engineering Technologist	0	18	0
2-Professionals	233402	Electronics and Telecommunications Engineering Technologist	0	6	0
2-Professionals	233503	Metallurgical Engineer	9	0	0
2-Professionals	233504	Industrial Engineering Technologist	1	2	0
2-Professionals	233505	Mechanical Engineering Technologist	0	17	0
2-Professionals	233602	Petroleum Engineer	2	0	0

2-Professionals	233603	Mining Engineering Technologist	30	40	0
2-Professionals	234301	Conservation Officer	33	0	0
2-Professionals	234302	Environmental Consultant	3	7	0
2-Professionals	249401	Technical Trainer	11	0	0
2-Professionals	261102	Systems Analyst	1	1	0
2-Professionals	261302	Developer Programmer	20	0	0
2-Professionals	262103	Systems Administrator	0	2	0
2-Professionals	263102	Network Administrator	0	2	0
2-Professionals	263301	Telecommunications Engineer	3	0	0
3-Technicians & Trades	311401	Chemistry Technician	6	0	0
3-Technicians & Trades	311901	Earth and Atmospheric Science Technician	0	9	0
3-Technicians & Trades	312101	Architectural Draftsperson	0	8	0
3-Technicians & Trades	312106	Surveying or Cartographic Technician	0	6	0
3-Technicians & Trades	312201	Civil Engineering Draftsperson	0	28	0
3-Technicians & Trades	312301	Electrical Engineering Technician	0	141	0
3-Technicians & Trades	312402	Electronic Engineering Technician	1	0	0
3-Technicians & Trades	312502	Mechanical Engineering Technician	0	79	0
3-Technicians & Trades	312601	Safety Inspector	0	21	0
3-Technicians & Trades	313102	ICT Customer Support Officer	1	0	0
3-Technicians & Trades	313103	Web Administrator	0	5	0
3-Technicians & Trades	322201	Sheet Metal Trades Worker	123	52	0
3-Technicians & Trades	323301	Engraver	7	0	0
3-Technicians & Trades	331201	Carpenter and Joiner	0	1	0
3-Technicians & Trades	331202	Carpenter	3	0	0
3-Technicians & Trades	334101	Plumber	0	12	0
3-Technicians & Trades	342303	Electronic Equipment Trades Worker	0	12	0
4-Community & Personal Service	411101	Ambulance Officer	0	3	0
4-Community & Personal Service	411102	Intensive Care Ambulance Paramedic / Ambulance Paramedic	0	4	0
4-Community & Personal Service	411102	Intensive Care Ambulance Paramedic / Ambulance Paramedic	17	4	0
4-Community & Personal Service	411401	Enrolled Nurse	0	1	0
4-Community & Personal Service	441201	Emergency Service and Rescue Official	0	4	0
4-Community & Personal Service	441202	Fire Fighter	0	32	0
4-Community & Personal Service	442204	Private Investigator	0	1	0

4-Community & Personal Service	442207	Security Officer	0	1	0
4-Community & Personal Service	451201	Driving Instructors	0	14	0
5-Clerical & Admin	511101	Contract Administrator	0	15	0
5-Clerical & Admin	511201	Office Administrator	0	2	0
5-Clerical & Admin	521101	Personal Assistant	0	1	0
5-Clerical & Admin	531101	General Clerk	0	9	0
5-Clerical & Admin	531101	General Clerk	17	9	0
5-Clerical & Admin	532101	Data Entry Operator	0	12	0
5-Clerical & Admin	551101	Accounts Clerk	0	8	0
5-Clerical & Admin	551102	Cost Clerk	0	11	0
5-Clerical & Admin	551201	Bookkeeper	0	1	0
5-Clerical & Admin	551301	Payroll clerk	0	4	0
5-Clerical & Admin	591103	Purchasing Officer	0	11	0
5-Clerical & Admin	591103	Purchasing Officer	3	11	0
7-Machinery Operators & Drivers	712901	Boiler or Engine Operator	0	14	0
7-Machinery Operators & Drivers	712903	Cement Production Plant Operator	0	1	0
7-Machinery Operators & Drivers	712910	Weighbridge Operator	0	3	0
7-Machinery Operators & Drivers	712910	Weighbridge Operator	7	3	0
7-Machinery Operators & Drivers	721201	Earthmoving Plant Operator (General)	0	265	0
7-Machinery Operators & Drivers	721203	Bulldozer Operator	0	61	0
7-Machinery Operators & Drivers	721909	Dredge Operator	0	6	0
8-Elementary	821103	Earthmoving Worker	0	50	0
8-Elementary	821902	Driller's Assistant	0	163	0
8-Elementary	899301	Handyperson	0	1	0
TOTAL			6755	8255	1234