

Workforce Turnover in FIFO Mining Operations in Australia:

An Exploratory Study

A research report by Centre for Social Responsibility in Mining and Minerals Industry Safety and Health Centre





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A research report by CSRM and MISHC

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Workforce Turnover in FIFO Mining Operations in Australia

Executive summary

Context and Objectives of the Study

The primary objective of this research project is to assist the mining industry manage workforce turnover more effectively, especially in fly-in/fly-out (FIFO) operations. A secondary objective is to map out an agenda for further research in the area.

The project arose from consultations with mining industry representatives, who identified turnover as an important issue for the industry and drew attention to the adverse economic, operational and social impacts of workforce instability. The research has been conducted jointly by the Centre for Social Responsibility in Mining (CSRM) and the Minerals Industry Safety and Health Centre (MISHC), with funding provided through the University of Queensland's Sustainable Minerals Institute (SMI).

Methodology

The study draws on data from three mines in Western Australia and six in northern Queensland. Seven of these sites are wholly or partly FIFO operations. Two townbased sites were included for comparative purposes. A case study methodology was used; data being collected from interviews, company records, public documents and site visits. Site based human resource (HR) managers were the primary group of interviewees, however other sections of mine management were interviewed where possible. All participating sites provided the research team with a substantial amount of documentary material and statistical data, in addition to the interview data.

Key Findings

Turnover rates at participating sites

Annual turnover of company employees at the seven FIFO sites, as at June 2002, ranged from 10 to 28 per cent, with the average being 21 per cent. This average is comparable to estimates from other studies. The two town-based sites had annual turnover rates of 8 per cent and 27 per cent respectively.

Within sites, turnover rates tended to be highest amongst professional and managerial staff, and in the mining operations area. Most sites did not record information about the employee turnover rates of contractors, but findings from a recent Western Australia industry survey (MOSHAB 2002) suggest that contractor workforces tend to be less stable than company workforces.

We found no evidence of turnover rates stabilising at a 'natural level once a mine had been in operation for a few years. Within some sites employee turnover rates varied markedly over time. This appeared to be due mainly to site-specific factors, such as changes in working arrangements and management interventions.

Explaining Turnover

Employee turnover rates were influenced by a number of factors, including:

- the FIFO roster structure shorter rosters, such as 9-days on/5-days off (9/5) and 8/6 were generally associated with lower employee turnover rates, although one site demonstrated that the 14/7 could be managed with employee turnover of only 12 per cent
- the level of management commitment to employee training and skills development
- the extent to which management had been successful in creating and maintaining a positive workplace culture
- the extent to which management perceived the present rate of employee turnover as inevitable.

External factors, such as the state of the labour market, appeared to be of only secondary importance.

The Cost of employee turnover

None of the participating sites tracked the cost of employee turnover, and no interviewees could estimate the full cost of employee turnover with any confidence. Using estimation procedures from other industries, we calculated that the cost of 'average' employee turnover at an open-cut FIFO mine of 300 employees would be in the order of \$2.8 million.

Many interviewees recognised that employee turnover costs could be considerable. These costs include direct recruitment and training costs, as well as loss of productivity during the stages of exit and replacement (loss of site and project knowledge, the orientation of new personnel by fellow workers, interruption of work teams and stalled projects). It is likely that managers would give greater attention to controlling turnover if they had access to more accurate information about the full cost of turnover for their operations.

How employee turnover was managed

Most interviewees agreed that a turnover rate above 20 per cent was detrimental to their site's productivity. Employee turnover at five of the sites in the study exceeded this threshold. At several of these sites managers saw ongoing high turnover as normal or largely due to factors beyond their control.

Few sites collected data to monitor and understand trends and patterns in workforce turnover on site. Only limited demographic information was collected about employees, little use was made of exit interview data, and most sites did not track trends over time or across different areas of the mine. In addition, most sites did not monitor, or have access to, turnover data for major contractors on site (including principal contractors, where they were used).

Implications for management

Controlling turnover in FIFO operations is not easy, given the location of these operations, the recurring travel demands on employees and the impact of extended absences from home. However, as illustrated by some of the sites in this study, high turnover is not an inevitable corollary of FIFO. Specific initiatives that can assist sites to better manage workforce turnover include:

- establishing monitoring systems to track turnover trends and patterns within occupational groups on site
- improving exit interview procedures and making better use of these data
- routinely evaluating management initiatives (such as the introduction of new recruitment practices) for their impact on employee turnover
- undertaking periodic 'organisational climate' surveys to monitor the workplace culture and employee perceptions of management
- reviewing existing roster arrangements to ascertain whether there is scope to introduce shorter, more balanced, rosters
- monitoring turnover rates amongst major contractors and, where necessary, taking steps to encourage contractors to address workforce stability issues
- supporting research to establish a reliable and comprehensive costing of employee turnover specifically for the mining industry.

Some practical materials to address some of these issues are included in the appendices to this report.

Future Research

The project has identified a number of areas where current levels of knowledge about employee turnover in the mining industry are inadequate. Questions requiring further research include the following.

- *How much does employee turnover cost?* A standard method for valuing direct and indirect costs associated with turnover is needed in the industry.
- *How does turnover within contractors affect mine operations?* Mine management currently has a limited appreciation of the extent and impact of employee turnover within principal contractors and sub-contractors.
- *Can retention of mine professionals and management be improved?* Research is needed to identify factors contributing to the high turnover of professional and managerial personnel and identify effective managerial strategies to improve their retention.
- *How does workplace culture on site impact on workforce stability?* A detailed comparative study is needed to determine the extent to which turnover levels are influenced by the site level organisational culture.

List of Abbreviations

ABS	Australian Bureau of Statistics
AusIMM	The Australasian Institute of Mining and Metallurgy
CSRM	Centre for Social Responsibility in Mining
DIDO	Drive-in / drive out
FIFO	Fly-in / fly-out
HR manager	Human resource manager
MISHC	Minerals Industry Safety and Health Centre
MOSHAB	Mines Occupational Safety and Health Advisory Board
SMI	The Sustainable Minerals Institute

Glossary

- Casual employee An employee hired on a daily basis or on a per/cycle basis (that is fly in to site and work for the full FIFO or DIDO cycle). Casuals can be sourced from a labour hire company, or have an individual arrangement between the mine company and the casual employee. Some mines make a point of hiring inexperienced casuals and training them to operate machinery. They then use this pool of casuals to fill vacancies in the permanent workforce as they arise. Casuals can be employed for more than 12 months at the site in a series of casual appointments.
 - Fixed term A fixed term employee is usually on a contract of between six and 24 months. Sometimes called 'temporary full-time' employees.
 - Permanent A permanent employee is a continuous appointment. employee
 - Company Employees of the company that owns the mine. The phrase 'Company employees' normally refers to permanent employees, but can include all company employees (permanent, fixed term and casuals).
 - Contractors Variously the companies or the employees of the companies that are associated with the mine, (not the lease holder of the mine). See also 'sub-contractor' and 'subbies'.
- Daily Commute The workforce travels between home and the work site on a daily basis. Work pattern and shift length can vary widely, but usually based on a 40-42 hour week.
- Drive-in / Travel to the mine is by road, and the workforce resides on drive-out (DIDO) site for a period of time before returning to the pickup point. Transport between the pick-up point and the mine is supplied by the company. One or both journeys are paid as work time. Usually operates on a 12 hour shift pattern. DIDO is different to FIFO in that the distances between the mine and the pickup point are shorter and individual employees may have the

option to self-commute to site.

- Fly-in / fly-out (FIFO)
 Travel to the mine site is by air, and the workforce resides on site for a period of time before flying back to the pick-up airport.
 Transport between the pick-up airport and the mine is supplied by the company.
- Parent company Where the mine operations is subcontracted to a principal contractor, the lease holder of the mine is sometimes referred to as the parent company.
 - Principal Term for the company that is engaged to undertake the actual mining for the lease holder. Principal mine contractors can have a similar employee structure to mining companies. That is, they will have permanent full time, fixed term and casual employees.
 - Owner miner Refers to a mine company that is both the lease holder of the mine and also undertakes the mining operations.
 - Sub-contractor Term for a company contracted at the mine by either the mining company or the principal contractor.
 - Subbies Variously refers to employees of sub-contracting firms or the sub-contracting firms on site as a group.

Chapter 1: Introduction

This introductory chapter describes the background, objectives, focus and scope of the study, discusses why turnover is an important issue for the mining industry and briefly reviews other research that has been conducted in the area.

1.1 Study Background

In 2002 the Centre for Social Responsibility in Mining (CSRM) undertook a scanning exercise to identify possible social science research projects that might be of operational benefit to the minerals industry and which addressed some aspects of sustainability. Consultations with industry personnel pointed towards workforce turnover as a potentially significant issue, especially in the FIFO sector, where concern was expressed about the adverse economic, operational and social impacts of high turnover. Further investigations established that very little research had been undertaken into the extent, causes or consequences of turnover within the industry.

Subsequently, the CSRM and the Minerals Industry Safety and Health Centre (MISHC) obtained funding from the University of Queensland's Sustainable Minerals Institute (SMI) to conduct an initial study of turnover at a limited number of FIFO sites. Several companies were approached to provide access to sites for the purposes of this research. A second stage was also foreshadowed, contingent on funding, which would further develop the practical outcomes of the project.

1.2 Project Objectives

The project aimed to enhance the mining industry's understanding of the phenomena of workforce turnover and assist - and encourage - the industry to manage turnover more effectively, especially in FIFO operations. Specific project objectives were to:

- 1. collect data on the extent and nature of workforce turnover in remote mining operations in Australia and possible costs associated with turnover
- 2. identify factors which impact on turnover rates and, in particular, to account for significant variations in rates between sites
- 3. identify workforce management practices that may be effective in reducing undesired turnover of staff
- 4. map out an agenda for further research in the area.

1.3 Scope of the Study

The study draws on data from three mines in Western Australia and six in northern Queensland. Seven of these sites are wholly or partly FIFO operations. At the remaining two mine sites the employees live in a nearby town. We chose to focus primarily on FIFO sites because there was some evidence from previous studies that FIFO sites tend to have higher levels of turnover than town-based sites. The two non-FIFO sites were included to provide some points of comparison.

All of the sites in the study are engaged in metalliferous mining, which reflects the make-up of the Australian FIFO sector. By limiting the study to metalliferous mines we were able to control for some confounding issues, such as the divergent industrial cultures of the coal and metalliferous sectors of the industry, and the different work patterns and remuneration levels in the two sectors.

Due to cost considerations and the logistical difficulties associated with organising travel and on-site accommodation, we were only able to visit six sites, all of which were in Queensland. Information about the three Western Australian sites was collected through extended telephone interviews and e-mail contact.

The study relies primarily on data that sites already had on-hand, or could make available fairly readily. It was not practical to collect data directly from employees or from personnel records, although this would certainly be desirable in a more comprehensive study.

The study focuses on turnover amongst company employees, rather than in the mine workforce as a whole. At some of the sites studied a majority of the workforce were employed by contractors and substantial functions, such as mining operations, were wholly contracted out. However, information about turnover amongst contractors was generally not kept by the companies and it proved difficult, for logistical reasons, to obtain direct access to contractors at most of the sites.

1.4 Definitional Issues

In broad terms, turnover can be defined as "any departure beyond organisational boundaries" (Macy and Mirvis, 1976). For the purposes of this study, our focus is restricted to employee movements that create a vacancy on site. This definition encompasses both voluntary and involuntary departures (for example, dismissals), but excludes movements that result from positions being made redundant. The turnover rate is simply the number of vacancies that are created by departures in a given year expressed as a proportion of the number of company employees at the site. This approach to defining turnover is consistent with the way in which the term is generally used within the Australian mining industry (although, as discussed in Chapter 3.2, sites varied in how this definition was applied in practice).

1.5 Why turnover is an important issue

Some employee turnover is beneficial for workplaces and is also socially desirable because it attracts new skills and ideas to the company (or mine) and creates new employment opportunities. However, there is broad agreement amongst practitioners and researchers that continuing high turnover has a number of negative impacts.

First, turnover is a direct financial cost to employers. Specific costs will vary between industries and occupations, and will depend on the nature of the job and the difficulty in recruiting a suitable replacement, but in broad terms include:

- separation costs (administration associated with processing resignations and dismissals, time taken up in conducting exit interviews, productivity losses associated with impending departure)
- vacancy costs (lost productivity and/or additional costs such as overtime or contractor payments to cover for vacancies created by departures)
- recruitment costs (advertising, employment of job search agencies, time and resources spent in processing applications, staff time involved in selection interviews, travel costs for short-listed candidates and relocation costs for successful applicants and their families)
- training and start-up costs (the time of trainers and staff and of new employees taken up in inductions and on the job training, loss of productivity until the new employee reaches full production potential).

Estimates of the dollar cost of turnover vary widely, in part because researchers use different multipliers for their calculations, and also because they are based on data from different industries. Estimations of the costs of hiring and training new employees vary widely. Replacing a relatively unskilled worker is reported to cost between 300 to 700 times the hourly rate (Moody 2002). Pinkovitz, Moskal and Green (1997) estimated that the replacement cost of an 'hourly rate' worker was eight times the weekly wage. Such estimates have been reported by consultants and key industry organisations in industries as diverse as retailing, the plastic industry, hotels and hospitality, and information technology.

No research has been conducted specifically on the costs of turnover at mining operations in general or FIFO sites in particular, but it seems likely that these costs will be greater than the estimates cited above. This is because the costs for replacements of FIFO workers, such as travel, accommodation, training and orientation costs, are routinely higher than those working in an urban setting. Additionally, there are extra costs associated with lost productivity due to the use of 12-hour shifts and long work patterns. Simply put, a position that remains unfilled on a 56-hour a week roster costs the company more in lost productivity than the same vacancy on a 40-hour a week roster.

Second, there is a considerable body of evidence that ongoing high turnover impacts adversely on operational efficiency, especially for complex processes that require close teamwork and high amounts of assumed knowledge. Where there is ongoing instability in the workforce, consequences can include increased stress and tension amongst those remaining employees who have to fill the gaps left by departing employees, declining employee morale, and decreased productivity due to loss of work group synergy (Pinkovitz *et al.*, 1997). In addition, new employees take time to reach full effectiveness and are likely to be more error-prone than their experienced counterparts. According to one study, staff turnover, acquisition, and assimilation rates can extend a project's cost and duration by as much as 60 per cent (Abdel-Hamid 1989:37¹). In a worst case scenario the outcome of continuing workforce

¹ Abdel-Hamid's research entailed modelling the impact of turnover on software design teams, a complex task involving input from multiple professionals. His work explored the orientation period for new recruits, including the assimilation period, which is the time needed to acquaint newly acquired

instability can be a negative workplace culture of distressed, under-functioning employees which then affects new recruits in a self perpetuating manner (Reese 1992 in Boshoff and Mels 2000).

Third, where turnover is high, it becomes much more difficult to focus on other workforce management objectives, because most of the capacity of human resource personnel is taken up with 'base level' tasks of recruiting and training new staff. In particular, there will be less scope to implement staff development initiatives and other strategies to enhance the skills and productivity of existing employees.

Fourth, high turnover amongst employment target groups, such as indigenous employees, makes it much more difficult to make progress against these targets. Again, much of the recruitment effort has to be devoted to replacing departing employees. In addition, where the target population is relatively small (for example, a local Native Title Group) the recruitment pool can be depleted quite quickly.

Fifth, there is concern that high rates of workplace turnover can increase the risk of safety incidents. Reasons for this are that: (a) there will be a greater proportion of recent recruits within the workforce, with consequent communication lapses creating more opportunities for error; (b) the constant concern of human resources personnel with covering for and replacing departing employees reduces opportunities for advanced safety training and refresher training and (c) it is inherently more difficult to build and communicate a positive safety culture if the composition of the workforce is constantly changing.

Sixth, particularly in the case of FIFO operations, high turnover could well be an indicator that employees are experiencing significant conflicts between 'home' and work life. Repeated family absence has been shown to contribute to such tensions (Beach 1999; Storey, Shrimpton, Lewis and Clark 1989). Work-home conflict is, in turn, associated with stress, reduced productivity, increased turnover intentions and a range of other negative consequences (Johnson 1995; Rice, Frone and McFarlin 1992).

Finally, high turnover can also have an undesirable effect on the communities that are associated with mining developments. When employees resign, they (and their families) will also leave the community. Where populations are unstable, it is much more difficult to build and maintain a sense of community and to sustain activities such as clubs and associations, which contribute positively to the social life of the community.

A further reason why it is important to undertake research on the issue of turnover is that some mining companies (for example, Newmont Australia) are now reporting publicly on employee turnover rates at their sites. It is likely that reporting against this indicator will increase in the future, as the Global Reporting Initiative has identified employee turnover as a 'core' sustainability indicator for companies (GRI 2002:52). If companies are to report publicly on their performance in this area, it is

team members with the mechanics of the project, integrate them into the project team, and train them in the necessary technical areas. The length of this assimilation period can vary depending on such things as the nature of the project and the training resources committed. According to one estimate, it takes 18 months for new employees to become maximally effective (Abdel-Hamid 1989:22).

important that they have a clear understanding of the factors which impact on turnover rates and are in a position to interpret trends and patterns correctly.

1.6 What is known about employee turnover in the Australian Mining Industry?

Voluntary employee turnover, and its corollary employee retention, has generated a vast amount of interest for over 50 years, with well over 1,500 academic papers addressing the subject. In addition, numerous articles in the popular business press, by personnel management consultants and others, discuss the extent of the costs of employee turnover and methods for reducing voluntary turnover². However, much of this literature is of only limited relevance to the mining sector as the focus of turnover research has been on occupations and industries based in major population centres.

Available data about turnover within the Australian mining industry comes from four relevant studies: AMMA (1998); Gillies, Wu and Jones (1997); the AusIMM 2001 membership survey (Venables, Beach and Brereton 2002); and MOSHAB (2002). Some useful data are also contained in the Australian Bureau of Statistics (2002) Labour Mobility Survey.

In 1998, the Australian Mines and Metals Association conducted a survey about long distance commuting in the mining and hydrocarbon industries (AMMA 1998). Respondents were 19 mining companies, 15 companies in oil and gas and three contractor companies (drilling and catering). A lengthy survey was posted to the Human Resources Superintendent at each operation (or company in the case of contractors). One of the conclusions of the report was that:

turnover ratios were not alarming... The mining sector's average turnover across all job categories ranged from between 0-17%. ... Turnover ratios for drilling contractors were, as research suggests, quite high and ranged between 25-50%" (AMMA 1998:3).

The questionnaire used in this research did not ask directly about employee turnover rates. Instead, this information appears to have been obtained from conversations with mine management, which casts some doubts on the validity of these data.

In 1997 Gillies, Wu and Jones (1997) conducted a series of mail-out surveys of the Australian mining industry focusing on the management of FIFO operations. Questionnaire data were gathered from 14 fly-in mines, 11 of which were operating with a 14 days on/7 days off pattern. The issue of employee turnover was not directly canvassed in the questionnaire. However, based on other information provided by participating mines, the researchers reported the following:

Only six FIFO operations responded that they could quantify their professional employee turn-over rates, with the highest rate being 60 per cent per annum and the lowest being nil in the previous 12 months. The non-professional employee turn-over rates of these operations ranged from the highest rate of 90 per cent to the lower of only two employees in the previous 12 months. No FIFO operations

² A recent example is an article by R. Turner (2003) in the February issue of the Australian Financial Review BOSS Magazine.

were aware of any industry wide data that detailed employee turn-over rates in FIFO operations (Gillies, Wu and Jones 1997:9).

The authors considered that individual or personal factors were driving the employee turnover rates at participating sites. They hypothesised that an iterative process of self selection operated whereby employees who liked FIFO stayed, and those who did not left the site – a process which was repeated until the workforce stabilised. In effect Gillies *et al*'s hypothesis supported a 'wait and see' approach to human resources management on FIFO sites. However, at the time of writing they could only identify two FIFO sites with the expected low employee turnover, and both of these were using even-time FIFO schedules.

In 2001, the Australian Institute of Mining and Metallurgy (AusIMM) conducted a membership survey which obtained responses from a broad cross section of mining industry professionals working in regional and remote operations, mainly geologists, mining engineers and metallurgists. Around one third of the respondents indicated that there were employed in a long distance commuting arrangement (typically a FIFO operation). Of this group, 17.5 per cent had changed jobs in the last year, compared with 10.9 per cent of respondents in town-based jobs (Venables *et al.*, 2002:5). These employees engaged in long distance commuting were more likely to report that their working lifestyle put pressure on personal relationships and that their lives lacked a balance between work, health and relaxation (Venables *et al.*, 2002:6-7).

In 2001 the Western Australian Mines Occupational Safety and Health Advisory Board (MOSHAB) conducted a survey of the health and safety attitudes and behaviours of employees in the Western Australian mining industry. The results, based on data from 4700 respondents, provide the most recent and robust information about workforce stability in the Australian mining industry. The survey measured employees' length of service at their current workplace as one of the survey items. The proportion of employees that have been at the workplace less than 12 months is a reasonable proxy measure of the level of employee turnover³.

Relevant findings from the survey are as follows:

- The overall proportion of workers with less than 12 months service at their current site was 19.6 per cent.
- Different occupational groups had differing levels of employment stability. Managers and operators appeared to have higher than average levels of employment change. Around 28 per cent of managers had less than 12 months service at their current mine, and one-third of mine employees (mine and plant operators, trades) had less than 12 months service at their current mine⁴.

³ Length of service includes those instances where hiring for new positions was undertaken in the previous 12 months. This means that a new mine, or a mine with a recent expansion, will have a larger proportion of workers who started in the previous 12 months. For these mines, length of service is a poor proxy for labour turnover. However, given the size of the MOSHAB sample, this factor is unlikely to have skewed the overall data to any great extent.

⁴ The published results did not provide a more detailed breakdown of occupational groups.

- The variation between industry sectors is considerable. Gold and nickel had the lowest levels of workforce retention. These sectors also have the highest number of FIFO operations. Coal and Alumina, which are residentially based, had the highest levels of workforce retention.
- Length of service among employees of contractors is, on average, shorter than length of service among employees of mine companies (further discussed in section 6.1 *Employee turnover within contractors*, page 37).

Another useful source of data is the Australian Bureau of Statistics (ABS) Labour Mobility⁵ survey which reports on the mobility of the workforce nationally, as well as providing comparative data across industry sectors (ABS Labour Mobility Report



Figure 1: Labour mobility by industry, Australia

⁵ The ABS definition of 'Labour Mobility' is much broader than employee turnover. It includes employees who remain with the same employer and change jobs, employees who remain with the same employer and physically move (such as taking an interstate position), all casual employees, all part-time employees, all temporary employees and all full-time permanent employees. Mining companies normally include only this last category of employees – full-time permanent employees - in their employee turnover rate.

6209.0 2002). The mobility rates for different industry sectors are represented in Figure 1.

The ABS estimates that nationally 15 per cent of employed Australians changed jobs during the year 2000. The job mobility rate in the mining industry as a whole was 21.7 per cent, giving it the highest mobility rate of any industry sector. This is further evidence that workforce turnover is a significant issue for the industry.

Structure of Report

The methodology used in the study is discussed in the following chapter. The results and discussions are then presented in four chapters. Chapter 3 presents descriptive data about the sites and describes how employee turnover was defined and recorded at these sites. Chapter 4 provides some theoretical back ground to the discussion of what factors impact on employee turnover and presents data about inter-site differences, intra-site differences and changes over time.

Findings about the management of employee turnover are presented and discussed in Chapter 5. Finally, issues relating to contractors that arose from our analyses are discussed in Chapter 6.

The report conclusions are provided in Chapter 7. Suggested practical tools for management on site are included in the Appendices.

Chapter 2: Methodology

This Chapter provides more detail about the key questions that shaped the research and outlines the methodology that was employed to address these questions.

2.1 Key Questions

The main questions that were used to guide the collection of data from sites were as follows:

Characteristics of employee turnover

- How is the employee turnover rate calculated?
- What are the turnover rates at different FIFO sites?
- Is there a 'typical' turnover rate?
- Are there differences in employee turnover between occupational groups?
- Do turnover rates for company employees and employees of contractors differ?

Influences on turnover

- How can inter-site differences in turnover be explained?
- What factors help account for differences in turnover between different areas of a mine?
- To what extent and why do turnover rates vary over time within sites?

Management practices

- How significant an issue is turnover for site management?
- How actively is turnover managed?
- What are the perceived acceptable and optimal rates for turnover?
- What are the costs of employee turnover?
- To what extent do sites monitor these costs and take account of them when making decisions?
- What strategies do managers use to control turnover and/or manage its consequences and how effective are these strategies?

2.2 Methodology

This study utilises a multiple case study design (Yin 1995; Stake 2000:438). Mine sites are well suited to case study methods as each site is a clearly defined geographical and organisational entity.

The method enabled qualitatively rich data from interviews, documents and observation to be combined with a range of quantitative data (including human resource data, exit interview data and data from previous studies) to construct profiles of the participating sites.

Data collection

The six Queensland sites were visited by at least one member of the project team. The interviews were conducted in person at these sites, and a wider range of personnel on site participated in discussions. Interviews and discussion with personnel at the three Western Australian mine sites were conducted by telephone. For all sites, additional data and documents were supplied to the researchers, such as turnover data, exit and entry forms



5. A draft of the final report was reviewed by other researchers and industry personnel.

(templates only). Where applicable other documents were supplied, such as management reports, employee incentive schemes and site newsletters. We also accessed publicly available information about the participating mine sites (for example web-based sources). Standard quantitative and qualitative data collection instruments were used to ensure, as far as possible, that comparable data were collected at participating sites.

A confidential site feedback report was provided to each participating mine. This process served to verify the accuracy of the researchers' findings and provided a point of negotiation about confidentiality and use of the data.

Confidentiality of sources

The following steps have been taken to ensure that confidentiality of participating sites and individuals is respected in this report;

- not disclosing the State where the mine is located
- including additional data in some tables
- changing the gender of the reported interviewee where this could identify an individual
- deleting the mine name in all quotes

• not specifying the year of significant events, where that might identify the mine.

Limitations

As indicated at the outset of this report, this is an exploratory study. Because we only have data about a relatively small number of sites - and a variable amount of information about these sites – our ability to test competing explanations in any systematic way or assess the relative contribution of different factors is limited. However, by analysing patterns across and within sites and over time, and by drawing on other research where available, we have been able to draw some broad conclusions and identify areas where further research would be most productive.

The main limitations of the study are as follows:

- The findings reported here may not be typical for the full population of Australian FIFO sites, although we are satisfied that there is a sufficient spread to enable some broad generalisations to be made.
- We included only two non-FIFO 'control' sites, which limited our ability to assess the impact of factors unique to FIFO operations (such as the impact of extended absences from home).
- With the exception of one site, data were not available on employee turnover amongst contractors. Contractors play a vital role in the Australian mining industry and clearly warrant attention in a more comprehensive study.
- The primary source of information was human resource and management personnel; collecting data from a wider range of employees was outside this project brief. It is possible that management perceptions about the culture of their sites and the factors that impact on turnover may not have been aligned with the experiences of the workforce as a whole, although we have made every effort to 'triangulate' verbal sources with data available on site, previous research findings and industry data.

The study focuses almost exclusively on the role played by organisation-level variables such as work scheduling practices, management style, workplace culture, and rates of remuneration. We did not survey employees and former employees in this study, so there is very little discussion of the impact of individual-level factors (such as employees' expectations and motivations) on employee turnover. The issue of what distinguishes employees who leave from those who stay has been studied extensively by researchers within the context of other industries.

Despite these limitations, we are confident that the key conclusions of the study are defensible and that it has provided valuable insights into the extent, causes and consequences of turnover in FIFO operations within the Australian minerals industry.

Chapter 3: Overview of participating mines

In this Chapter we present and discuss data on:

- the characteristics of participating sites
- definitions of employee turnover used at participating sites
- turnover rates at June 2002

Findings on how employee turnover was managed on site are presented in Chapter 5: page 28) An analysis of the possible explanations for variations in turnover between and within sites is provided in Chapter 4.

3.1 Characteristics of participating sites

Table 1 (page 13) presents data on key features of the mine sites participating in this study.

- Six mines were owner operated⁶, with the remaining three sites utilising principal contractors to undertake mining operations. All mines made substantial use of contractors for other functions, such as maintenance.
- The total workforce at the mine sites ranged from 240 to more than 900. The total workforce on site includes all company employees, all employees of contractors and sub-contractors.
- Seven mines were FIFO sites, one was a town based operation which used a daily bus shuttle to and from site and one was located close to a town.
- A range of rosters were utilised, but most were loosely based on a 2:1 ratio of work days to rest days (5/2-4/3, 9/5, 10/4, 14/7). Employees in mine production and processing generally worked the longer cycles, which usually included night shift.
- Three mines were open-cut and six were underground operations.
- All mines had been in production for a minimum of three years, with most operating for five years or more, and all had at least another five years of operation left.

Owner miners and principal contractors

In presenting the findings of this study, we have been careful to distinguish between companies that are "owner-operators" and companies that have engaged a principal

⁶ There is some variation in the industry in the use of terms such as *owner miner*, *owner operated*, *principal contractor* and *sub contractor*. These terms are defined in the glossary at the beginning of the report.

contractor to undertake mining operations. The reported turnover rates are for company employees only, as data on turnover amongst employees of principal contractors were only available for one site. This could have affected the comparability of site-level data, as there is some evidence that turnover rates tend to be higher in those areas that are managed by principal contractors (see Chapter 6: *Issues Relating to Contractors*, page 37).

	Site 9	Site 8	Site 7	Site 6	Site 5	Site 4	Site 3	Site 2	Site 1
Owner operator	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
No. of company employees on site	175	206	237	134	246	295	>300	212	>300
Contractors on site	363	221	144	258	80	52	220	31	98
Total workforce at mine	538	427	381	392	326	347	>500	243	>400
Commute type	FIFO	FIFO	Town	FIFO	FIFO	FIFO	FIFO	FIFO	Town
Main work patterns for staff employees (days)	5/2 9/5 10/4	8/6	5/2	9/5	5/2 9/5	9/5	9/5	9/5	5/2
Main work patterns for operations employees (days)	14/7		8/4		14/7	14/7	14/7	9/5	4/4*
Work pattern for contractors	21/7	14/7	-	14/7 28/7	14/7	14/7	14/7	14/7 28/14	4/4
Underground/ Open-cut	OC	UG	UG	UG	OC	OC	UG	UG	UG
Started production	1999	1997	1996	1995	1996	<1995	1997	1995	<1995

Table 1: Characteristics of participating mines

*Site 1 used variations of an even-time 12-hour roster. Some 8-hour patterns in use.

Work schedules

There can be many different work patterns in use on a mine site. Work patterns recorded here are for company employees and principal contractors, or for the most common work pattern for sub-contractors. The work rosters at participating mines were broadly similar across the sites, and across occupations. Most employees were working an average of 50-56 hours per week, using some variant of 12 hour shifts and a ratio of 2:1 work days to rest days. There were two exceptions. One was a town-based site using even-time 12-hour shift rosters (Mine 1), and a FIFO site where the principal contractor was working 21/7. Small sections of the workforce on some sites might work shorter or longer rosters (for example mine management or exploration drillers). None of the FIFO rosters were 'extreme', such as six weeks on/one week off, and none were even-time.

Mine life stage

All the mines in this study were well-established operations that had been in production for three years or more, and had at least another five years of expected mine life. Therefore, turnover rates were unlikely to have been influenced by start-up effects, or employee concerns about impending closure.

Demographics of mine workforce

Most sites collected a range of personal information on personnel forms, such as date of birth, address and gender. Such information was often recorded in a form that was not quickly accessible for analysis; for example, on paper forms or in an electronic form that requires manual re-coding (such as addresses). Only limited data were available about the demographic composition of mine company employees at participating sites. At seven of the nine sites the human resource (HR) managers interviewed did not consider such personal information about employees to be relevant to management of a mine. The available demographic data are summarised in Table 2.

Table 2: Demographic information about company employees

	Site 9	Site 8	Site 7	Site 6	Site 5	Site 4	Site 3	Site 2	Site 1
Average age	-	36	-	36	-	36	36	39	-
Female employees	* 17%	10%	-	* 18%	-	13%	15%	* 7%	-
Indigenous employees ⁷	* 20%	* 2%	5.5%	4%	-	5%	-	-	-
Family status of employees	-	-	-	-	-	60% part- nered	-	-	-
Distance from home to mine									
Single journey	* 70%	-	-	-	* 70%	-	68%	* 80%	-
2 nd journey from pick-up point, 2 hours or more	* 30%	-	-	-	* 30%	-	32%	* 20%	-

Denotes estimate

- Denotes data not recorded or not in an accessible form

The table shows that:

• The average age of employees was around 36 years.

⁷ The percentages reported here are likely to underestimate the number of indigenous company employees on site, as only employees who identify themselves as indigenous Australians are recorded as such in HR records. For example, at site 6, the number of indigenous employees could only be estimated by the number of employees engaged from the indigenous trainee program associated with the mine. The number of indigenous employees hired through the regular recruitment process was not known.

- Women accounted for between seven and 18 per cent of the employees on site.
- Indigenous employment rates varied from 2 per cent to 20 per cent. Five sites were able to report on the proportion of employees who were indigenous. Several sites had an active training program for local indigenous people.
- Up to a third of employees travelled an additional journey of more than two hours between home and the pick-up point.

Six sites had recently adopted (or were in the process of installing) powerful integrated HR software that would enable personnel statistics to be reviewed by HR managers more readily than in the past. However, with the exception of one Western Australian mine, other relevant data such as family status or length of total commute time were not collected in either written or electronic form.

Given the social implications of the FIFO lifestyle, accurate demographic information about employees and contractors can be very important in designing retention strategies for the workforce. Such information would also assist in the interpretation of turnover statistics for different mine sections.

3.2 How employee turnover was defined on site

In general, mine site turnover is a simple calculation of total number of exits divided by total workforce over a given period of time – usually 12 months. This general formula was applied by all sites in the study. However, mine companies varied in what was included in the *workforce* and what constituted an *exit*.

Workforce

The workforce at any mine site consists of permanent employees, casual and contract employees and employees of sub-contractors on site. However, at all participating sites the turnover rate statistics utilised by management applied only to full time employees of the company. Casual and temporary contract employees, and employees of contractors (including principal contractors) were not included in these calculations.

Often, when discussing 'site turnover rates' the stability of company fulltime employees is used as a proxy for the turnover rate of the whole workforce at the mine site. This is inappropriate for a range of reasons. Most importantly, the employee turnover rate and the workforce turnover rate at a mine can be very different.

Exits

All participating sites counted the following employee movements as exits

- employees who had resigned from the company
- dismissed employees and (where applicable)
- retiring employees.

Exits from site involving temporary contract employees or intra-company transfers were sometimes included and sometimes excluded, depending on the site. Three sites counted the resignation of fixed term contractors as exits contributing to site turnover, notwithstanding that the parent company had a policy of excluding fixed term contract employees from employee turnover calculations.

Sites varied in excluding or including external transfers, temporary contractors who resign, and retrenched employees. The reported mine site turnover rate was also influenced by the way contractors were used at the mine. For example, companies that were owner miners included mine operations employees in their turnover statistics, and mine companies using principal contractors did not.

Overall, while the sites in this study notionally defined employee turnover in broadly similar ways, there were differences between mines in terms of which employees were included in calculations. This limits the scope for comparing rates across sites. A standard definition of employee turnover applied to all exits would enable more reliable performance benchmarking for industry (see *Appendix 1* Suggested definitions and data recording fields, page 49).

3.3 Employee turnover rates for 2002

Figure 2 shows the annual turnover rates for 2002 for company employees for each of the sites in the study, based on the definitions and data provided by the sites.

The average employee turnover rate across all mines in the study was 20.2 per cent. Company employee turnover reported at the seven FIFO sites ranged from 9.7 per cent to 28.3 per cent. Finally, the two town-based sites (site 1 and site 7) reported annual turnover rates of 7.8 per cent and 27.0 per cent respectively

The average turnover rate for company employees at owner-operated FIFO mines was 16 per cent, compared with 26.8 per cent at contractor operated FIFO sites. This is an unexpected finding, given that employee movements in the mining area - where turnover tends to be higher than average - are included in the turnover rate for owner-operators.



Figure 2: Reported turnover of company employees at participating mines, June 2002

* Indicates mines with principal contractors. Turnover rates for these mines exclude personnel employed in mining operations.

3.4 Chapter summary

- All sites in this study made substantial use of contractors, with three sites using a principal contractor to undertake the mining function.
- A range of rosters were utilised, but most were loosely based on a 2:1 ratio of work days to rest days.
- All sites were well into the production phase of mine life and none were approaching closure.
- Employee turnover was defined in broadly similar ways by all sites (exits/total employees), but there were different definitions of *exits*. In addition, companies recorded turnover only for their own employees, not contractors.
- Company employee turnover for the FIFO sites varied from 9.7 per cent to 28.3 per cent.
- There was a marked difference in the turnover rates of the two townbased sites (7.8% and 27.0%).
- Turnover of company employees was lower at owner-operated mines than at mines that had contracted out the mining function.

Chapter 4: Factors Impacting on Turnover

Many people within the mining industry have firmly held views about what affects employee retention and turnover, both at their own sites and in the industry more generally. It is important that these views are scrutinised, to ensure that managers are not acting on incorrect assumptions and that human resource initiatives are targeted in areas where they are likely to have most effect. In this chapter we look at factors that contribute to workforce turnover in remote mining operations, focusing primarily on those variables that can help to account for differences between sites.

The first part of the chapter presents a conceptual model of the determinants of turnover, drawing on the HR management and organisational behaviour literature. This is followed by a discussion of possible explanations for inter-site differences in turnover, focusing particularly on the impact of: commuting arrangements; roster structures; external labour market factors; and organisational culture. Finally, there is a brief analysis of intra-site differences in turnover rates between operational sections on-site and in turnover rates over time.

4.1 A model of turnover

Organisational theorists have mapped the processes that lead to voluntary employee turnover, based on research in different industries over the past 40 years. The decision of an employee to leave the organisation is the culmination of many preceding events and influences, some of which originate from outside the workplace, others which arise directly from company policy and policy implementation.

The following model draws upon the wider human resource literature to represent different factors that can impact on turnover rates at particular sites, and the interactions between these factors. The left hand side of the model identifies the main influences on employee retention that the employer has direct influence on. These are:

- workplace conditions (eg physical amenities)
- the workplace culture (eg organisational policy, implementation, management of group dynamics)
- remuneration levels
- job design (eg opportunity for skills development)
- commute type (eg FIFO, DIDO, daily commuting)
- work roster (eg 14-on, 7-off, with nights)

All these directly contribute to employees' level of satisfaction with their job. External influences on employee satisfaction include:

• personal attributes including personality factors (not shown here) and

• the level of work-home conflict (eg partner's career opportunities, absence from home).

This last factor is influenced in turn by work demands on the employee, nominally represented in this model by the link between work roster and work-home conflict. Whether an employee decides to stay or leave a workplace will largely depend on whether these different factors have a positive or negative overall impact on employee satisfaction (Vandenberg and Nelson 1999, Weil and Kimball 1995).



Figure 3: Conceptual model of factors that contribute to employee turnover at mine sites

The right hand side of the model identifies the factors that determine whether a desire to leave translates into an actual resignation. The main influence at this stage is the availability of alternate work. By then, the decision to leave has been made and the employee's focus is on assessing alternative employment options and timing the departure. For employees, this stage is often accompanied by an emotional and behavioural withdrawal from the organisation, and consequent loss of productivity (Birati and Tziner 1996).

Professional employees are likely to leave a workplace when they are dissatisfied, regardless of whether the employment market is strong or weak. Production employees, on the other hand, will leave when they are dissatisfied and there is another job opportunity (Trevor 2001). It is this combination of dissatisfaction and the availability of alternative work that produces an exodus of workers when another operation opens up in the same geographical area.

The research literature suggests that strategies to improve employee retention should focus on issues within the organisation's control; that is, issues which affect job satisfaction, organisational commitment, work-home balance and so forth (Weil and Kimball 1995).

4.2 Explaining inter-site differences

A diverse array of factors may help to account for inter-site differences in employee turnover, ranging from highly time and situation-specific factors, such as local management practices, through to underlying 'structural' features, such as where the mine is located, the roster structures that are in place, and so on. In the following discussion, we focus on those factors which participants in the study considered to be most significant.

Comparing FIFO and Town-based Operations

Only two of the operations in this study were town-based and their turnover rates varied markedly⁸. However, there is other research indicating that FIFO sites have higher turnover, on average, than non-FIFO sites (Gillies Wu and Jones 1997:90; Venables et al. 2002:5).

Several of the HR managers who we spoke to agreed that it was inherently more difficult for FIFO operations to retain personnel. This was mainly because employees were required to be absent from home on a regular basis and often had to work longer rosters than town-based employees. One manager described the pressures in the following terms:

They hit the wall and move on. It's the nature of FIFO that people get sick of it. It's influenced by many things, the age of the kids, the years in FIFO, where they live (domestic location), family connections there and movements of them and friends. (Mine manager)

According to another:

FIFO is measured in dog years. It's dependent on the person, but most people get really tired of it after a while. (Administration manager)

A third declared that:

The life span of a FIFO person is 3-5 years on any one site. (HR superintendent)

At the same time, it is clear that some FIFO sites do considerably better than others in containing employee turnover. For example, there were two sites in our study which had managed to keep turnover well below 15 per cent over an extended period of time (See Figure 4, page 27). In order to account for these differences, it is necessary to focus on factors that vary between FIFO sites, such as rosters, labour market factors

⁸ One had the lowest rate in the sample, at just 8 per cent, but the employee turnover rate had been over 20 per cent just three years earlier. The other had a current turnover rate of 27 per cent, which put it at the upper end of the range in our study.

(including remuneration levels), management practices and workplace culture. These aspects will be addressed in the following discussion.

The Impact of Rosters

There was relatively little variation across sites in our study in either the total number of hours worked or the length of the roster. The most common FIFO rosters were 14/7 days and 9/5 days. Most mine company employees averaged between 50-56 hours a week and the ratio of work-days to rest days was in the vicinity of 2:1. None of the FIFO operations in our study utilised even-time rosters.

In the mining industry generally there is ongoing debate about the merits of different roster structures. Our respondents reflected these divergent views about the importance of the FIFO roster. Some saw roster design as a key to controlling turnover, whereas others regarded this as of secondary importance. Respondents also disagreed about the types of rosters that were best suited to retaining employees, although the majority saw even-time and 9/5, 8/6 rosters as being the most 'worker-friendly' rosters (albeit not always regarded as financially practical).

Within our sample of mine sites there were several indications that longer rosters were associated with the higher rates of employee turnover.

- The FIFO site with the lowest overall turnover rate (9.7%) ran a 9/5 schedule⁹.
- Two companies had recently changed from a 14/7 to a 9/5 roster for their employees, and the early indications were that turnover had reduced.
- One site had increased the length of its roster in 2001, from 9/5 to 14/7. The employee turnover rate doubled in the ensuing period, and over the next 18 months HR division worked hard to bring the rate back down.
- At one mine, process employees worked an 8/6 roster whereas most other operational employees were on a 14/7 roster. Operators working the shorter roster had a turnover rate of 12 per cent, compared to 32 per cent of those on longer roster.

Some interviewees argued that employees may prefer to work longer rosters, notwithstanding the disadvantages, because of the greater financial rewards.

The 14/7 was adopted based on the idea that people prefer to be better paid, than have more time at home. On even-time the complaint is that there's not enough money, even though the time is great. (Mine manager)

It was also suggested that some workers preferred longer roster cycles because of the time and expense involved in travelling to and from their homes.

⁹ Personnel at this site were generally very positive about the 9/5 schedule, seeing it as combining the advantage of high earnings (derived from working an average of 54 hours per week) with the benefits of having every second weekend at home.

14/7 has fewer travel costs for company and less travel time for workers (that is, it's better than 9/5). A shorter roster is more expensive for those workers who have to fund their own additional travel. (Mine manager)

However, there was little evidence to support the argument that employees were willing to trade-off longer rosters for higher take-home pay. For example, at one site, employees of the principal contractor worked a 21/7 roster. An experienced truck driver at this site could earn in excess of \$90,000 a year, compared to \$70-75,000 at other FIFO operations in the region working a 14/7. (Note that there was little difference in the hourly rates). The 21/7 roster was, therefore, an opportunity to earn an additional \$15-20,000 a year. Despite this, the turnover rate for these mine operators was around 49 per cent, which was much higher than the mine operators at the other sites.¹⁰

Some managers feared that reducing the length of roster would lead to the loss of employees who had been attracted by the prospect of earning 'big money'. However, it seems likely that, over the longer term, this effect would be counterbalanced by the increased retention of those employees for whom lifestyle and job security are also important considerations.

Mining contractors work longer rosters here. Someone coming from a 3:1 roster to a 2:1 takes a pay-cut. But they don't see the positive side. They prefer the dollars rather than the time. (But) when we became owner operators the vast majority (80-85%) of the contractors stayed with us. This was because of the conditions (like health cover), and job security with a larger company. (HR Superintendent)

The External Labour Market

Some interviewees saw a clear connection between the state of the external labour market and the level of turnover at their mine site. At five of the sites management believed that the start-up of new operations in surrounding regions had triggered a wave of employee turnover among mine production employees. Even sites with low turnover were worried by the prospect of other operations opening in the region.

Gladstone and Rockhampton are 'peaking' and that's pulling a lot of workers away There's other major works in the area that are drawing people away. EHM is expanding, (so is) Mt Gordon, Cannington, Phosphate Hill. (HR manager)

Managers at some of the Queensland metalliferous sites suggested that the upturn in the Bowen Basin coal industry over the last few years had made it harder to keep experienced personnel because coal offered higher wages, shorter rosters, and the opportunity to live close to work.

Mining has a much higher turnover than other parts of the mine. ... Their skills are transferable and coal pays better. When there's opportunities they can go. (mine manager)

¹⁰ Previously this site had operated a 28/7 roster in the mine, with an annual turnover rate of in excess of 80 per cent.

However, external factors may be of limited relevance in explaining site-specific turnover. Four of the sites in this study were in North Queensland, each paid roughly equivalent penalty rates for basic jobs such as truck driving and all were exposed to the same broad market factors, particularly the 'pull' of the Bowen Basin, yet three sites had markedly different turnover rates.

Studies of employee turnover in other industries have concluded that, for skilled employees in particular, the decision to quit is driven more by organisational and career-fit factors in their present job than by availability of more attractive employment opportunities elsewhere (Trevor 2001; Vandenberg and Nelson 1999).

Job satisfaction has a much stronger influence on employee turnover than the condition of the external labour market. That is, highly skilled employees quit primarily because they are dissatisfied with their current job, not because of job opportunities elsewhere. In an environment of fewer job opportunities the less skilled workers will take longer to leave (Trevor 2001:634).

If this is the case, then managers who explain employee turnover by focusing on external market-related factors may be underestimating the extent to which turnover is within their sphere of control.

Organisational Culture

There is a solid body of research from other industries suggesting that the organisational culture, broadly defined, can have a significant impact on the job satisfaction of employees and therefore their propensity to stay or leave¹¹. Not surprisingly, if people like where they work, feel valued, and have a sense of shared purpose with other employees, they will be less likely to want to change jobs.

The processes that shape workplace culture include: management behaviour and attitudes, policies and practices relating to discipline, communication, training, and the provision of opportunities for job variety and career advancement. The level of workforce stability can also have an impact. When personnel are changing rapidly, it is much more difficult to build up organisational commitment and a sense of shared purpose: in this regard, high turnover may not only be a consequence of a poor organisational culture, but may play a significant role in perpetuating it.

In our study, managers at FIFO sites with relatively low turnover all emphasised the quality of human resource policies and management-employee relations at the site. While it was not possible to cross-check these claims with employees, it was the assessment of the researchers that managers at these sites were quite strongly focused on developing and maintaining a positive culture.

On the other hand, managers at sites with high turnover had divergent views about the relevance of cultural factors to employee turnover at their sites. One training superintendent saw turnover in the mining operations at his site as being due, in large part, to 'internal politics'.

Particularly in the mine there is quite often a feeling of not being wanted. Supervisory styles have (also) been an issue, although some of the strong

¹¹ Cohen and Hudecek 1993; Meyer and Allen 1997; Tett and Meyer 1993
personalities have now left. Some of the crews underground have good morale and function well, but this isn't true for all of them. (Training coordinator)

However, the general manager at the same site considered that 'the culture here is no worse than anywhere else'. At another site, the HR manager expressed the opinion that 'the culture here is good; people just can't cope with all the family pressures'.

It is also possible that some management interviewees were not attuned to possible negative views amongst employees about how the site was managed, or were reluctant to share this information with outside researchers.

In summary, organisational researchers have established that cultural factors play a significant role in employee retention. Workplace culture was considered by many interviewees to be influential to employee turnover at their mine site. However a separate study, focused on employee attitudes, would be needed to map workplace culture and evaluate its impact on employee turnover.

4.3 Explaining Intra-site Differences

Differences between occupational groups

Four sites were able to provide disaggregated turnover information for major occupational groupings. These data are presented in Table 3, below.

		Mine	site	
Occupational group	8	5	4	1
Mining Operations	31.4	32.0	27.3	6.8
Mineral Processing	19.2	12.1	11.0	6.8
Maintenance /trade	6.0	23.3	n/a	-
G, E, Met, HS&E, HR	68.4	*26.7	n/a	*10.4
Management & Support	31.0	*26.7	10.5	*10.4
All of mine, 2002	28.3	22.1	19.9	7.8

Table 3: Turnover for 2002, by mine site and occupational grouping

na - indicates not applicable. Occupational functions are included in 'minerals processing' and 'mine ops', or subcontracted.

G, E, Met, HS&E, HR - Mine professionals, across all sections of the mine. That is:

Geologists; Engineers; Metallurgists; Health Safety & Environment; Human Resources.

* - indicates data are for combined mine professionals and management.

Mining operations had a substantially higher turnover rate than the minerals processing area in three of the four sites for which data were available. With the exception of one site, turnover rates for mine professionals and management were also higher than the site average. This is consistent with the results of the MOSHAB (2002) survey of Western Australian mines.

Interviewees proposed a variety of reasons for differences between occupational groups and work areas, including:

- differences in skills transferability it was suggested that it was more difficult for minerals processing operators to find work elsewhere, because 'each plant is different and it takes a long time to learn the job'
- different roster structures in some sites, the mining area worked a longer roster than the rest of the operation
- the degree of boredom and monotony associated with the job this was seen as contributing to turnover of operators in open-cut mines
- the occupational culture we were told at one site that underground miners had a 'tradition' of moving around from site to site
- career progression considerations it was argued that managers and professionals were more likely to look for opportunities to expand their experience and skill base by moving to another mine
- differential impacts on lifestyles a couple of interviewees suggested that professionals found it more difficult to adapt to the FIFO lifestyle.

Further, research is needed to test the validity of these 'hypotheses'. In particular, it is important to develop a better understanding of the factors that impact on turnover amongst professional and managerial personnel, given the high cost of replacing these employees.

Trends within sites over time

Five FIFO sites provided longitudinal data for three years or more, with two making data available for seven years (Figure 4). Only one mine could supply employee turnover data from the start of mine production.

There was no consistent pattern across sites in turnover trends and there was not enough data available to determine if turnover typically followed a cyclical pattern. In one case (mine 8) turnover had fallen dramatically in the previous three years; in another (mine 5) turnover had increased over the same period, in two others (mines 9 and 4) turnover had risen and dropped again; and in the remaining site (mine 2) the rate had remained low for an extended period. This picture of divergent trends runs counter to the commonly expressed view within the industry that turnover rates tend to stabilise once a mine has been through its initial 'settling-in' phase.

Limited recorded data were available about the factors that influenced trends in turnover at particular sites. Some possible explanations were provided by the interviewees, based on their recollection of the history of the site. For the most part interviewees highlighted local factors as influencing employee turnover, such as:

- changes in site management
- adoption of new rosters
- a shift from contract to owner-operator mining

• a change from open-cut to underground mining.

The marked drop in turnover at mine 8 between 2000 and 2002 was attributed to a sustained program by management to improve workforce retention, that included the introduction of a shorter roster and a focus on building a positive workplace culture. The rise in employee turnover at mine 5 was explained as a result of changing from contractor mining to owner mining at that site.





4.4 Summary

The key points from the above discussion can be summarized as follows:

- Evidence from other studies indicates that FIFO sites tend to experience higher turnover than non-FIFO operations. However, it is also clear that some FIFO operations perform significantly better than others in terms of employee retention.
- There was little evidence to support the argument that employees were willing to trade-off longer rosters for higher take-home pay. In fact, the ability to earn greater annual pay on longer FIFO patterns (eg working a 21/7 roster) was associated with higher employee turnover.
- Managers often see the external labour market as a major factor in employees' decision to leave. However, the literature suggests that the

availability of attractive alternative jobs is not necessarily the primary motivator for employee exits.

- Consistent with this argument, some sites seemed to have been considerably more successful than others in insulating themselves from market pressures.
- Based on other research, it seems likely that differences in turnover rates between sites are at least partly attributable to differences in workplace culture, although additional research is required to understand how this mechanism operates.
- Employee turnover can vary markedly between mine sections. Generally speaking, turnover appears to be higher amongst professional and managerial staff, and higher in the mining operations area compared to the mill or maintenance areas.
- There is little evidence to support the commonly held view that turnover rates tend to stabilise at a 'natural' level once a mine has been in operation for a few years, or that turnover typically follows a cyclical pattern.
- Specific events and management interventions appear to be major determinants of changes over time in site-level turnover rates.

Chapter 5: Managing employee turnover

In this section we report on how employee turnover was managed at site level, focusing on:

- managers' views of preferred turnover levels
- the perceived consequences and costs of turnover
- the use of information about employee turnover
- strategies for dealing with turnover and its consequences.

5.1 Preferred Turnover Levels

All interviewees agreed that zero turnover was undesirable.

As far as turnover goes, 10 per cent would be the minimum that provides the variability you need. Less than that and you get entrenched attitudes that stifle creativity. Company towns established for different mines - you can see it especially coal towns - experience problems like this. You get three generations living in the town and working for the one mine. They have a way of doing things and they hate to see it changed. (Mine Manager)

Conversely, there was general agreement that employee turnover above 20 per cent per annum had a significant adverse effect on mine operations. At six sites managers nominated an 'optimal' turnover rate for their operations, which ranged between 8 and 16 per cent (Table 4).

	Site 9	Site 8	Site 7	Site 6	Site 5	Site 4	Site 3	Site 2	Site 1
Employee turnover at June 02	25.7%	28.3%	27.0%	26.4%	22.1%	19.9%	12.6%	9.7%	7.8%
Optimal turnover nominated by site management	-	15%	-	15%	-	15- 16%	12%	12- 15%	<10%
Acceptable range for employee turnover	15 - 20%	<20%	10 - 20%	10 - 20%	10 - 20%	<20%	10 - 20%	-	5 - 20%

Table 4:Current and o	ptimal turnover P	rates reported at	participating mines
	4		

Management at one town-based site and one FIFO site indicated that they were content with the current employee turnover rate. At another FIFO site, concern was expressed that the rate was 'a bit low' (9.7%) and at a third the optimal and actual

rates were in balance. At the remaining five sites the actual employee turnover rate was outside the range that managers had themselves nominated as 'acceptable'.

Only one site had a documented performance target for employee turnover. This target was not generated by site management, but rather was set by their company head office. None of the other sites had specific targets for employee turnover. It was also uncommon for sites to report publicly on their performance in this area.

5.2 Perceived Costs and Consequences of Turnover

Interviewees at several sites expressed concern about the costs of employee turnover to their operations:

Turnover has been as high as 33 per cent. Over 20 per cent you *never* get a return on your (recruitment) investment. Inductions and safety training are the most expensive – there's a whole week's salary gone in that alone. Also you get increased contractor costs. You double your training costs 'cause you've got to do the basic training for the contractor filling in and the permanent replacement when they turn up. (HR Superintendent, town-based mine)

Indirect costs, loss of experience, loss of production, aren't costed. We know we pay a cost for losing experienced tuck drivers or an experienced driller. We need a costing (\$). We know it adds up. Just (take) absenteeism. We don't measure it directly, but we do measure our truck utilization. When it goes down we don't know if it's absenteeism or turnover. (HR Manager)

The biggest costs (of turnover) is loss of production. The cost of re-hiring, not just the dollars associated with advertising, but supervisor's time, HR officers time, training time and trainer's time, recruitment time. And that's going to be different amounts of training for mill, technicians or drillers. They all have to be passed out on different equipment. (Training supervisor)

Recruitment, in particular, was seen as potentially a very expensive exercise.

A Metallurgist is \$5,000 plus newspaper ads, interviews, travel and accommodation (for interviewees) is about \$2000 each. The two best applicants we'll fly to site. Recruits relocating from Perth can have relocation costs of \$10,000. For key personnel we might fly the partner to site as well. (Mine HR Manager)

If we make a dud recruiting decision it will cost us between \$50,000 and \$100,000. That starts with \$4,000 in ads, my time and effort in organising and attending meetings and interviews and doing checks, travel to and from site, accommodation on site... That's for locals. We'll try to recruit locally, but if the applicant is coming from beyond (city), there's travel and accommodation for interviews. You're looking at \$130,000 if recruiting from further away. (Mine HR officer)

For every job that's available they will shortlist three or four for an interview. Then there's the time taken up with finalizing the recruitment process (medicals, accommodation on site), then there's the time in training and induction (basic first aid, risk assessment, drug and alcohol policy) this takes up managers and superintendents time, then, depending on their skill level, it'll take six months to a year before they're integrated into the (site) culture and operating 'at a higher level'. (HR manager)

In addition, human resources personnel spoke of the strain placed on their own areas.

Higher than 20 per cent and then HR capabilities are stretched for recruitment and training. We have a small team here. (Mine HR Manager)

Stability within our workforce gives our people a bit of a break from continually having to train. (This mine site is) already very lean. So any vacancy puts a load on the people who remain. Say, on a crew of 23 there's always a couple of people missing from leave, a couple of inexperienced people, someone's ill and two or three vacancies. They're always under stress when we have less than the full complement of crew. We already work a 12-hour day, vacancies mean working 13-14 hour days. (HR Superintendent)

While there was recognition that the costs of turnover could be substantial, interviewees could not estimate the full cost of employee turnover with any confidence. At a couple of the participating sites HR personnel had endeavoured to quantify the financial impact, but these were only a partial listing of direct costs, such as advertising. One parent company nominated the cost of turnover as 150 per cent of the annual salary of the vacant position. However, this was a 'ball-park' estimate, and lacked a clearly articulated methodology.

Writing some 20 years ago Cascio observed that:

Unfortunately many organisations are unaware of the actual cost of turnover. And unless this cost is known, management may be unaware of the need for action to prevent controllable turnover and may not develop a basis for choosing among alternative programs designed to reduce turnover. A practical procedure for measuring and analysing the costs of personnel turnover is needed, especially since the costs of hiring, training, and developing personnel are now viewed as investments that must be evaluated just like other corporate resources (Cascio 1982, page 19).

These points appear to be equally applicable to the modern day mining industry in Australia. However, costing turnover presents a number of methodological, empirical and conceptual challenges. Some impacts, such as the reduction in work-group cohesion and morale, are difficult to quantify and express in financial terms. Costs associated with any given turnover event can also vary considerably, depending on which employee has left and how he or she was replaced. For example, managers at some sites noted that large cost savings could be obtained when filling a vacancy from intra-company transfers. Similarly, recruiting locals (either in town or at the pick-up point) reduced the cost of the interview process and re-location expenses. Some interviewees also pointed out that some costs are fixed, so lowering the level of turnover will not necessarily result in cashable savings; for instance, unless there was a dramatic reduction in turnover, a site would still need to employ the same number of human resources personnel. If these staff were able to devote more time to higher level training this would benefit the organisation in other ways, but there would not be any direct financial savings.

Addressing these and other issues relating to costing methods would require a study in its own right. However, some very rough estimates of possible costs can be obtained by applying costing formulae from other studies to a 'typical' mine with a 'typical' turnover rate. On this basis, as detailed in the text box below, the annual cost of employee turnover for a 'typical' FIFO mine with 300 employees would be in the

	nated the cost of aver	age employe	e turnover at a	a hypothe	tical mine with	n 300
employe	 the mine is 	owner operat	ed, open-cut a	and a 14/	7 FIFO roster	
	 the pattern MOSHAB p 	of employee ublished ave	turnover acros rages for oper	ss mine se ators, sup	ections is cons pervisors and	sistent with the managers
	 there is low maintenance 	er employee æ areas than	turnover within in the mining	n the mine area	erals processi	ng and
	 conservativ 	e annualised	salary figures	•		
Table 5:	Estimated employe	e turnover o	osts for an av	verage m	ine of 300 em	nlovees
rubic ci	Mine area	Annual	Turnover	no.	cost per	total
(r	io. employees)	salary	rate	exits	exit	
	Operations (140)	70,000	19.6%	27.5	<mark>\$21</mark> ,000	\$577,500
F	rocessing and other personnel (90)	75,000	15%	13.5	\$37,500	\$ 506,250
	Supers (10)	80,00 <mark>0</mark>	15 <mark>%</mark>	1.5	\$80,000	\$120,00 <mark>0</mark>
I	Management & Mine Professionals (60)	90,000	19.6%	12	\$135,000	\$1,620,000
т	otal turnover budget (300 employees)					\$2,823,750
		Broose	line operations	s 30 per c r 50 per c	ent of employ ent of employ	vee annual wag vee annual wag
		FIDUES				

order of 2.8 million dollars. If anything, this underestimates the likely true costs of employee turnover¹².

Regardless of the precise basis on which costs are calculated, the potential financial impacts of turnover are clearly substantial. It is therefore surprising that more effort has not been made in the industry to quantify these costs and use this information as a management tool.

¹² Initially our costings were 20% less, but our industry reviewers encouraged us to raise the estimated turnover costs for mine and processing operators.

5.3 Use of data by management

Turnover data

Employee turnover statistics were reported in monthly mine reports at eight of the nine sites in this study. Some mines used turnover rates in forward planning, such as budget allocations for training and recruitment, but this was the exception. At the majority of sites, HR managers and mine managers appeared to make little use of the statistical data, preferring instead to rely on their own knowledge of human resource trends on site.

All the mines in this study had concerns about how to recruit the best people for the mine, and then retain them on site (see below), but little strategic use was made of turnover data to promote this objective. For example, no site tracked turnover rates of 'locals' and 'green recruits' relative to rates for employees recruited from elsewhere within the industry.

Only four sites routinely disaggregated their employee turnover rate to find out what was happening in different areas of the mine. Some HR managers pointed out that the low numbers in some occupations, such as specific professions and mine management rendered occupation specific turnover rates meaningless.

"I'm not really worried about Admin and Mine Tech Services because they are small groups and you only need one extra person to leave to make get big differences in the turnover rate."

However, this issue could have been addressed by aggregating small numbers in specialist occupations into a larger group to provide a more robust measure of turnover.

Finally, as discussed in more detail in the following section, site managers generally did not monitor turnover amongst the employees of contractors and sub-contractors working on-site.

Exit interview data

All participating companies conducted exit interviews with employees who resigned from the company. Normally, a member of the human resource team would interview an exiting employee using a standard set of questions, and record the data directly on to a paper form. The main outcomes of the interview were shared with the mine manager, and other mine site personnel as was considered appropriate. The data sheet was then filed either on site or with the company head office.

In most instances the results of the exit interview were only considered on an individual basis at the time of departure, and were not grouped with other interviews and analysed for patterns and trends. There was only one site where exit interview data were routinely entered into an electronic database. At the other sites the information from exit interviews effectively became inaccessible because of the time involved in accessing individual hardcopy records.

Even if it had been possible to retrieve these data, their value would have been limited. While every effort was made by sites to protect confidentiality, the use of site

personnel to undertake interviews is unlikely to encourage departing employees to be forthcoming in their criticisms of management. Not surprisingly, many people find it difficult to express critical comments directly to managers or their representatives, especially if they wish to leave open the option to return to the workplace at a later date. Also, some explanations – such as finding a 'better job' - are more acceptable to put on a form whereas others – such as 'family reasons', or 'conflict with supervisor' – are expressed more comfortably in a conversation¹³. Using independent people to conduct interviews, preferably in an off-site location, and designing the exit interview to capture more in-depth information in a code-able form, would substantially increase the value of the information derived from this source.

Demographic data

As discussed in Chapter 3: (page 12) sites typically collected only a limited amount of demographic data about employees. Moreover, this information was rarely used to compare turnover rates amongst different groups of employees. For example, sites were generally not in a position to determine whether turnover was higher amongst married than single employees, or whether it varied according to where employees lived. Only one site specifically monitored turnover amongst its indigenous employees.

Employee satisfaction

Most sites did not appear to have formal strategies in place for monitoring employee satisfaction or the health of the workplace culture. One site had recently undergone a major restructure, and in the process had used employee opinion surveys. One site had periodically undertaken employee satisfaction surveys, which aided management in assessing their strategies for employee retention. None of the other sites routinely utilised surveys for this purpose.

In general, management at participating mines relied almost exclusively on informal processes to monitor workforce satisfaction; that is, they relied on what managers observed and heard in the workplace.

5.4 Strategies for dealing with employee turnover

Views on what works

At four sites in the study HR managers reported frustration at their inability to implement effective strategies to reduce and contain turnover. At the sites that had achieved relatively low turnover (i.e. below 15 per cent) management attributed this to a combination of:

• equitable remuneration

¹³ Researchers have questioned the accuracy of data collected from exit interviews that allow only one recorded reason for leaving, because of the propensity of respondents to opt for face-saving reasons. The data can become skewed to general categories that have little meaning (Campion 1991:200).

- commitment to training and skills development
- good management; and
- developing and maintaining a positive organisational culture.¹⁴

Interestingly, the work roster – while very important – was not included in this list. In part, this may be because the other factors require on-going attention, whereas once an accepted roster is in place, it is generally no longer an issue for management unless significant problems arise.

Recruitment Issues

HR managers at four sites indicated that they tried to control turnover by recruiting for a good person-organisation fit. The following quotes give examples of this approach.

The old practice was hiring Operator Maintainers – where they only hire tradesmen to operate equipment ... that means you've got over qualified operators who are not using their skills. So you have the effect of dumbing them down, or, higher turnover 'cause they look for work that uses their skills. ... Now we get unskilled people on as operators and train them up for basic maintenance. They get their tickets, not full trades, but acknowledge skill level acquired. ... You need balance in recruitment. You don't want a shift full of Einsteins. You need to recruit people who are happy in those positions. (HR Superintendent)

Knowledge and culture. Recruitment is not just about experience, but also looking for people who fit the site culture. (HR Officer)

In the initial recruitment stages (start up) we tried to achieve a balance between experienced workers and green recruits. (Over time) we've tried to maintain that balance. Sometimes we target experienced workers and sometimes inexperienced and sometimes women. The point is to create the best team, so it's not necessarily a competition for the brightest or most experienced applicant. (Mine manager)

All mines in the study hired some 'green recruits'; that is, people who had no prior experience in the mining industry. There was no consistent view among participating sites as to whether hiring green recruits on FIFO sites was a net cost or a net benefit to the mine compared to hiring experienced operators. However, it was recognised that green recruits needed to be managed carefully.

The strength of the organisational culture can be shattered. ... It has to be constantly renewed. New recruits come on, and they don't understand what communication is all about. It's not engrained. (Mine manager)

¹⁴ At one site the contribution of management was described in the following terms:

⁽The) new management team, ... it's essentially kept a reform focus. The management is innovative and fair. Second is the contribution of the EBA in 2000. They addressed the disparity in pay between the different areas of the mine....earlier there was turnover of 80-100% in some areas of the mine.

Of the crew we brought on, we had a lot of inexperienced people and we paid for that. They'd never done fly-in before, some had never worked away from their families before. So they were feeling (pretty low) and their families were screaming for them.

We're (taking more care in) settling them in more now. We try not to get too many experienced people (at once). But we do target inexperienced people 'cause they don't have in-grained bad habits and expectations that are unrealistic to our site. (HR superintendent)

Four FIFO sites targeted recruitment in either the area around the mine or the local area of the pick-up point. This was done partly to reduce recruitment costs and partly because local employees were seen as being more stable. For one site this has resulted in 30 per cent of their employees being sourced from a nearby town.

The effectiveness of recruiting locally is difficult to determine, especially in the absence of any evaluation data. Many local towns do not have the skills required (or a large enough population) to supply the mine site. In fact, local recruiting policies may encourage imports from out of town to relocate (at their personal expense) to take advantage of work opportunities. This can lead to a cycle of training up 'new locals', only to find that they leave as readily as their FIFO workmates.

None of the HR managers interviewed raised the issue of turnover among employees whose home was beyond the pick-up point for travel to the mine. At FIFO operations most employees make their own way between the pick-up point and their home. Up to a third of employees at participating mines had to travel an additional journey of two hours or more between their home (refer Table 2, page 14). For those with a second flight to catch, or a long drive, this can mean substantial financial costs and loss of recreation time. The impact this has on employee turnover (and employee fatigue) appears not to have been considered at any of the sites. If the relative turnover rates of employees living in different locations are not monitored then the effectiveness of hiring policies that are based on home location cannot be assessed.

Use of casuals

At five sites HR personnel discussed the use of a casual labour pool to cover illness, holidays, unexpected work flux and vacancies created by exiting employees. This was seen as allowing the number of permanent employees to be kept at a minimum, but was not necessarily perceived as more cost effective.

Sixteen (16) contractors are on permanent employment. They're wages are paid for by their parent company, and we pay a daily rate for them while they're on site.

(Interviewer) That means that there are 16 contractors (casuals) filling in for vacant positions at any one time?

Yes. There's a bit of a 'try before you buy' mentality. But the fact is that employees only have to give one month's notice. And that's not long enough to advertise, select, and train a replacement. So we hire casuals to fill the position immediately, and then progress through advertising to find a replacement. Internally first. Casuals can be here anywhere between 3 to 12 or 18 months.

Interviewer - It's cheaper than putting on a permanent?

That's not necessarily the case. The message from our head office is that it is cheaper to recruit full time and I would agree with this. The approximate average price for a contractor is \$35.00 per hour. (Administration superintendent)

One advantage of using a pool of casual workers was that it enabled HR managers and section supervisors to try out new workers before making them permanent employees.

5.5 Summary

In summary, it appeared that at the majority of sites in the study reducing and/or containing turnover was not a high priority for management. This was despite the fact that several of these sites had turnover levels outside of the range that managers themselves identified as acceptable.

Indications of the lack of attention paid to managing employee turnover included the following:

- while there was a broad appreciation that the financial cost of turnover could be substantial, no site had quantified or tracked these costs
- site management generally made only limited use of turnover data, information from exit interviews and demographic data
- most sites did not monitor employee satisfaction levels in any formalised way
- recruitment strategies were generally not evaluated in terms of their impact on employee retention.

Managers at those sites which had been reasonably successful in containing turnover attributed this to a combination of

- equitable remuneration
- commitment to training and skills development
- good management
- developing and maintaining a desired organisational culture.

Recruiting for person-organisation fit was also seen as a way of reducing turnover, although there were divergent views about how best to achieve this fit. The effectiveness of such strategies was difficult to determine, given the lack of evaluation and monitoring by sites.

Chapter 6: Issues Relating to Contractors

In this section we review the available data on employee turnover within contractors, and discuss how this issue was managed at the sites in this study.

6.1 Employee turnover within contractors

Only one site could provide any statistical data on employee turnover rates of principal contractors or sub-contractors¹⁵. This made it impossible to independently verify the interview data collected from participating sites. The following discussion has drawn heavily on the Western Australian MOSHAB 2002 survey data, which proved to be a useful alternative source of information about retention patterns among contractors and mine company employees.

Using the MOSHAB data set we identified those Western Australian mines which employed a principal contractor to undertake mining operations. We then compared the average length of service for contractor employees and company employees who were currently at these mines¹⁶. This analysis indicated that for all major occupational groups mine company employees had a higher average length of service than employees of principal contractors (Table 6). This finding is consistent with the views expressed by interviewees in our study.

Figure 5 plots the relationship between employee retention among mine company employees against employee retention amongst contractor employees at the same mine site. The diagonal line indicates the point at which contractor and mine company employees had spent an equal amount of time at their current mine (on average). Those points below the line are mines where company employees had been on site longer than the contractor employees. Those points above the line indicate the mines where contractor employees had stayed longer on site than the mine company employees.

As Figure 5 shows, there were a small number of mines where the average length of service of contractor employees exceeded that of company employees at the mine. However, where this occurred the differences were only of the order of a few months or less.

¹⁵ See the glossary for definitions of these terms

¹⁶ Data have been screened so that average length of service is only calculated for mines with at least 10 contractor employees.

	Company employee	Contractor employee
Operator	7.22	1.98
Support	4.77	1.68
Supervisor	8.60	2.92
Manager	5.18	2.50
wiallager	5.18	2.30

Table 6: Average length of service (years) at current mine (MOSHAB 2002)

Figure 5: Average length of service of contractor and company employees in WA (MOSHAB 2002)



Average time of contractor and company employees at current mine (MOSHAB 2002)

There are several possible explanations, not necessarily mutually exclusive, for why employee turnover tends to be higher amongst contractors.

First, there is some evidence that contractors tend to work more onerous rosters. At five of the participating sites in our study, the contractors (and sub-contractors) worked longer patterns than the company employees (Table 7, below).

		Contractors &
Site	Company	Sub-contractors
1	4/4	4/4
2	9/5 (all)	28/7 (max)
3	14/7	14/7
4	14/7 (production)	21/7
	9/5 (professionals)	
5	14/7	14/7
6	9/5	28/7 (max)
7	8/4	-
8	8/6	14/7
9	9/5	21/7

Table 7: Most common work patterns* of mine companies and contractors

*The work patterns in this table are indicative of the work patterns on site. Readers should bear in mind that there can be many different work patterns on site for different groups of workers and different subcontractors.

Second, it is possible that contracting companies have a more transient culture than mine companies and are more focused on short-term objectives. Certainly, it is a common view within the industry that employees of contractors are more likely to be people seeking to earn (and save) money for some short to medium term goal.¹⁷

Third, contractual limitations may make it more difficult for contractors to retain employees over the longer term. For example, low profit margins can lead to cost reduction strategies such as paying lower wages, choosing a longer FIFO roster or limiting camp facilities. Also, a change of contractor can result in a significant change in the workforce.

Finally, it has been suggested that contractors and sub-contractors are usually smaller organisations than mining companies, and consequently can provide fewer career progression and training opportunities to employers.

¹⁷ In a similar vein, some interviewees suggested that most contractors' employees were single people – notwithstanding that at least two researchers (Beach 2001 and Gillies et al 1997) have reported data showing that many employees of contractors have partners and families.

Due to the limited scope of our study, we were not able to collect the additional data required to test these different explanations. We hope to be able to address these issues in more detail in the second stage of the project.

6.2 The impact of high employee turnover in contractors

In a contractor arrangement many of the direct financial costs of employee turnover (such as recruitment and training) are usually born by the contractor, not the company. Even so, high turnover amongst contractor employees will still present a problem for site management.

The inherent difficulties of combining employees of different companies into one workforce on site are likely to be exacerbated by high levels of employee turnover. In addition, there will be significant implications for training, safety and communications.

At one site, a sub-contractor's employee turnover rate was so high that it posed an unacceptable drain on Health and Safety training resources for the mining company. This resulted in the sub-contractor being threatened with loss of the contract unless employee retention was improved.

Safety standards for contractors are lower than for (the company). So there is a continual process of training new contractors up to company standard. Stability of the contractor workforce is very important for mine companies to get value for the investment in training.

There is currently a continuous process of training people into new positions, because people leave. A (subcontractor) project manager's contract is for five years, but they turn over every $2\frac{1}{2}$ years. (Mine training and safety officer)

At another site, one sub-contractor had used casual labour hire employees to such an extent that each time the sub-contractor came on site an entirely new group of workers arrived. These workers needed to be inducted onto site. The subcontractor employees did not know the site and the permanent employees did not recognise subcontractors. The constant change of personnel led to a serious safety incident. In response, the mine company instigated a policy of asking for subcontractors to send the same personnel to site for future work.

6.3 The contractor-mine company relationship

For the most part, managers at the sites in our study did not pay much attention to the issue of employee turnover amongst contractors unless, as in the examples above, specific problems had arisen. Not surprisingly, it was also uncommon for site management to get involved in issues relating to the terms and conditions of employment for contractor personnel. The main exception to this was a company which had limited its contractors and sub-contractors to a maximum FIFO schedule of 14/7 while they were engaged at the company's sites¹⁸.

One thing that we've refused to be drawn into is this thing of screwing contractors to the wall. Long schedules like 8 weeks in and 2 out, or 6 weeks in and one out." (Company) insists on a maximum FIFO schedule of 14/7 for all its contractors. We believe 2/1 is the longest anyone should be working. More than that is a real health and safety issue, it's too hard to manage (as an individual worker). (HR manager)

Mine management may have to take a more interventionist approach to dealing with contractors in the future. Current health and safety legislation holds the mine owner ultimately responsible for the health and safety of all workers on site. This factor, combined with the greater awareness generally in the industry about safety, provides a strong incentive for companies to take a greater interest in the workforce management practices of their contractors.

6.4 Chapter Summary

Key findings in relation to employee turnover amongst contractors were as follows:

- The MOSHAB 2002 survey data supports the widely held view within the industry that turnover tends to be higher amongst employees of contractors than amongst company employees.
- Different employee turnover rates between contractors and companies could be due to a number of factors, including differences in working conditions and career opportunities and differences in corporate culture and structure.
- Although the direct financial costs of employee turnover (such as recruitment) are usually born by the contractor, high turnover amongst contractor employees still has significant costs for site management, particularly in relation to workplace training and safety.
- The site managers in our study did not routinely monitor employee turnover amongst contractors working on site and, for the most part, adopted a 'handsoff' approach to issues relating to the terms and conditions of contractor employees. It will be more difficult for companies to maintain this stance in the future, given the continued focus on safety within the industry.

¹⁸ However, these contractors and sub-contractors were not required to provide data on employee turnover in their monthly reports to site management.

Chapter 7: Concluding Comments

This concluding section summarises the key findings from the study and discusses the implications for mine site management.

7.1 Key Findings

There is substantial variation in employee turnover rates between and within FIFO mine sites.

We found no evidence of a typical turnover rate, and no evidence to suggest that employee turnover will gradually reach a steady state. Employee turnover rates for the FIFO mines in the study varied between 9.7 per cent and 28.3 per cent and averaged 20.2 per cent overall.

Within sites, turnover was generally higher among mine professionals and mine management than among maintenance and minerals processing workers. Turnover also appeared to be higher in mining areas than processing areas.

Employee turnover is a significant cost for the mining industry.

The direct costs of employee turnover to a company include separation costs of departing employees, the cost of advertising and filling vacancies, training costs of new personnel, and lost productivity.

None of the participating sites or companies assessed or monitored the financial cost of turnover in a systematic or comprehensive manner. A reliable costing for FIFO mine sites is needed to support effective management decisions about the value of employee retention strategies.

Based on conservative cost estimates from other industries, an average turnover rate of 19 per cent at an open-cut mine with 300 employees will cost the company around \$2.8 million annually. This estimate does not include cost factors specific to FIFO mines, such as travel and accommodation during the interview processes.

There is a broad consensus amongst managers that a turnover rate above 20 per cent is detrimental to site productivity.

At the majority of sites, managers varied in their views as to the optimal turnover rate, with estimates ranging between 8 and 16 per cent, but all agreed that a rate of 20 per cent or more was undesirable. Significantly, the majority of sites in our study had turnover rates equal to or above this level.

Managers are often not focused on controlling turnover

At the majority of sites managers tended to see other issues as being of greater importance to employee turnover. Relatively high rates of employee turnover were considered normal or unavoidable by management at some sites. Higher employee turnover was also expected of some occupational areas. In part this was because management were not aware of the full cost of turnover to their mines.

Time series data, and data for different mine sections or occupational groups, were not widely used to determine trends in employee turnover or to evaluate the success of management strategies. Exit interviews were conducted at most sites, but little use was made of the data derived from these interviews.

Employee turnover amongst contractors is generally not a priority for mine management.

The site managers in our study did not routinely monitor employee turnover amongst contractors working on site and, for the most part, adopted a 'hands-off' approach to human resource issues within their contracted workforce (including principal contractors).

Many of the factors that affect turnover rates are potentially within management's 'sphere of control'.

We found that turnover rates between mines operating within the same general labour market varied considerably. This suggested that the main drivers of turnover were often internal, rather than external, to the mine sites. This study identified several factors that contribute to employee turnover, and its corollary, employee retention.

Key factors on site were:

- the roster structure
- the level of management commitment to employee training and skills development, and 'good management' generally
- the extent to which management had been successful in creating and maintaining a positive workplace culture
- parity of wages with labour market competitors (although maintaining equitable remuneration was not, by itself, sufficient to ensure workforce stability)
- the extent to which management perceived the present rate of employee turnover as inevitable.

7.2 Implications for management

Controlling turnover in FIFO operations is not easy, given the location of these operations, the recurring travel demands on employees and the impact of extended absences from home. However, as illustrated by some of the sites in this study, high turnover is not an inevitable corollary of FIFO.

Specific initiatives that might assist sites to better manage turnover include:

- establishing monitoring systems to track turnover trends and patterns within the site, across occupational groups and mine sections
- improving exit interviewing procedures and making better use of these data
- routinely evaluating new management initiatives (such as the introduction of new recruitment practices) for their impact on turnover
- undertaking periodic 'organisational climate' surveys to monitor the workplace culture and employee perceptions of management
- reviewing existing roster arrangements to ascertain whether there is scope to introduce shorter, more balanced, rosters
- monitoring turnover rates amongst major contractors and, where necessary, taking steps to encourage contractors to address workforce stability issues
- learning from the experiences of those FIFO sites which have succeeded in keeping turnover low over extended periods.

In addition, it is likely that managers would give greater attention to controlling turnover if data on the full cost of turnover were available for their operations. Full costing, in turn, would enable more informed decisions to be made about such matters as the economic implications of introducing different roster arrangements.

The Appendices to this report contain advisory material designed to assist managers address some of these issues. Specific aspects covered are:

- suggested definitions of employee turnover
- proposed exit interview data collection procedures
- seven questions to assess employee turnover on site
- the estimation of replacement costs.

7.3 Future Research

Finally, this research project has identified a number of areas where current levels of knowledge about employee turnover in the mining industry are inadequate. Key issues requiring further research are as follows.

• *How much does employee turnover cost?*

This research would develop a standard method for valuing direct and indirect costs associated with turnover, to support management decision making at mine sites.

• *How does turnover within contractors affect mine operations?* This research would undertake a study of principal contractors and subcontractors to identify what issues are specific to this section of the industry, and how they affect mine operations. • How do aspects of workplace culture at the site level impact on workforce stability?

A detailed comparative study of a small number of high and low turnover sites would provide contextually rich data, particularly about the extent to which turnover levels may be influenced by local cultural factors.

- How can retention of mine professionals and management be improved?
 Having regard to the high cost of replacing these employees, this research would focus particularly on identifying the factors that contribute to turnover amongst professional and managerial personnel.
- How do remuneration levels affect employee turnover amongst operations employees?

In this study, it appeared that greater aggregate pay obtained from working longer FIFO rosters did not result in a more stable workforce. The earnings associated with a roster may attract employees, but maintaining a stable workforce may rely on very different factors on site. This research would involve a survey of operations employees working a range of FIFO rosters to evaluate what were the motivating factors to start working the FIFO schedule, and what might be encouraging them to leave.

• Are mine employees leaving the site, quitting FIFO or leaving the industry?

A survey of ex-employees from a cross-section of FIFO sites would provide valuable data on their reasons for leaving and also identify whether they have remained in, or left, the FIFO sector.

• *How applicable are these findings to other mines?* A follow-up study, using statistical data about a larger number of sites, would enable more robust assessments to be made of the impact of rosters and other significant factors on employee turnover.

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Appendices

In the appendices we provide some material which may assist sites with the management of employee turnover. There are four appendices;

- Appendix 1 Suggested definitions and data recording fields provides a definition of employee turnover, a definition of mine site turnover, and proposed standard data entry fields for human resources records within companies.
- Appendix 2

Proposed exit interview data collection form. This provides an example of a standard exit interview data collection sheet and procedures for ensuring confidentiality of responses.

• Appendix 3

Seven questions to assess employee turnover is a set of steps that will assist management in assessing the employee turnover on site and developing a strategy to address employee turnover.

• Appendix 4

A framework for estimating separation costs provides a list of the areas that need to be included in a realistic financial assessment of the costs of employee turnover.

• Appendix 5

Data Collection Tools, contains the quantitative and qualitative data collection instruments used for the study.

Appendix 1

Suggested definitions and data recording fields

Definitional Issues

Different types of employee movements have very different consequences for a mine site and for a mine company. For example, internal transfers, resignations, and retrenchments have very different organisational consequences in terms of retaining experience and future recruiting. Currently these differences are obscured by the way employee turnover has been variously defined and used in the mining industry. Consequently, even comparisons between sites of the same company are sometimes difficult.

The following definition of employee turnover is proposed:

Employee turnover is that group of employee movements that create a vacancy within the organisational unit.

The rate of employee turnover is the number of exits that create a vacancy divided by the average total employees .

The above definition of employee turnover can be applied to any organisational unit; mine sections, occupational group, or whole of mine. It can be applied to all employee movements, regardless of whether they concern permanent, temporary or casual employees, to determine if they contribute to employee turnover.

Typically movements of fixed term employees have been ignored in the turnover calculations, yet premature departure of fixed term contractors often involves the loss of specialist skills, and can be disruptive and costly to projects. Using the above definition, when the departure of a fixed term employees creates a vacancy this will add to the turnover rate. At other times, such as when the contract is completed, there is no vacancy and the exit will not add to the turnover rate.

Measures of other employee movements will be more useful when not confused with the turnover rate at the mine site. It is proposed that employee movements be categorised into the following groups:

- retrenchment / redundancy (no vacancy resulting from exit)
- recruitment for new positions (new position)
- intra-site transfers (skills and knowledge retained within organisational unit), and

• employee turnover (exits that result in a vacancy).

Each type of employee movement has accompanying costs and benefits for the company and/or mine site. In the case of *retrenchment* and *recruitment for new positions*, these costs will be associated with major strategic decisions about the mine, and will be costed independently to day to day mine operations.

Intra-site transfers involve very few costs to the mine, compared to other employee movements.

Employee turnover is distinct from the first three types of employee movements in that it has both exit and recruitment costs.

Workforce turnover versus *employee* turnover

Currently employee turnover is reported by some mine companies as a comparative measure across sites, as though it represents the whole of the workforce on site. This obscures the very real differences between owner miners and companies that engage principal contractors.

A whole-of-site measure is needed to ensure fair comparison between sites with different workforce structures. It is beyond the scope of this report to pursue such a standard here, but we raise the issue for discussion within the industry with two possible solutions.

1. Adopt a measure of workforce turnover that includes all standard and ongoing operational areas of the mine, regardless of wether they are operated by contractors or by the mine company. That is,

Mine site turnover is the number of exits that create a vacancy from all companies working on site/total workforce on site in on-going positions.

2. Alternatively, "site" turnover or aggregated employee turnover should not be used as the standard comparative measure. Rather, standard operational groups (such as production, processing, professional & technical services, management & admin. services) should be reported separately. In this way the reported statistics of employee turnover are equivalent to each other, and the differences between owner miners and others are observable.

To the extent that the above strategies for defining and collecting turnover data are proven useful at site level, it is proposed that industry-wide standards be developed to maximise the benefit that can be drawn from routine data collection. This will assist management to benchmark their mine's performance against industry norms.

Proposed standard data fields needed for understanding employee movements

Most sites in this study had quite recently transferred to sophisticated HR software that enabled data to be stored and accessed when needed. In order to gain full value from these systems is it important for site management to ensure that the type of information being entered into these data bases is both relevant and sufficiently detailed to answer the questions they are interested in.

Depending on the nature of the questions management want answered, additional data may need to be collected at the site level. A sophisticated software package should enable additional data fields for site use. Some example data fields are in Table 8.

The employee turnover incidence is easily distinguished from other types of employee movement by the first data field *Did this exit result in a vacancy*?

Data relevant to particular strategies used on site can be collected in the additional data fields¹⁹.

Exit interviews can also be re-designed to capture much more of the complexity of reasons for leaving than is currently the case (see following Appendix).

Monitoring the source of recruitment would demonstrate the frequency of employee movement within the company and within the mine site. It would also measure the extent to which employee turnover on-site is counter balanced by intra-company recruitment.

Start date	
Mine section	Occupational group
Returning employee (Has this person previously worked at this site?)	Employee status (perm, temp, casual)
Source of recruit (intra site transfer, intra company transfer, external source)	Date of birth
	Gender
End date	
Did this exit result in a vacancy?	Type of departure (for example; transferred off-site, medical retirement, voluntary departure - resigned/retired, finished work contract, retrenched, dismissed
Additional data field for site use (eg distance travelled between site and home)	Additional data field for site use

Table 8: Example HR data fields

¹⁹ Only employee attributes that are stable are suitable to be included in HR data fields. Other variables, such as *family status* (married/single) and *dependents* (children, aged or disabled) have not been included in the list because they will vary over time. Such data are best captured during exit interviews, or during with employee satisfaction surveys.

Appendix 2

Proposed exit interview data collection form

A well designed data capture sheet will enable information to be recorded from exit interviews without adding any complexity or extending the time the interview takes. The data can then be entered into a data base, which will make the information far more accessible for management use on site.

In designing such a document there are many issues to be clarified - such as which data fields should be standard, and which should be optional for site use. Such issues need further research to be resolved. The form below is provided as an example of how data capture can work in the context of exit interviews as they are currently conducted on site.

Procedural issues such as who conducts the interview and when and where the exit interview is held, affect the likelihood of participation and the validity of the employee's responses. For example, the closer the interview is to the workplace and the employer (who may or may not be providing a reference for future work) the less likely the employee will answer candidly. An independent third party conducting the exit interview at a location off-site would be the ideal in this respect. A trial of different options for interview procedures is needed to maximise validity, participation rates and cost effectiveness.

Procedure

A data collection form such as the one below can be used at the end of the exit interview, once the issues have been discussed. The form, and an envelope can be handed to the interviewee. The form can be discussed, and neutral fields filled out with the interviewer (position, start and end date).

The interviewer should

- * indicate the confidential areas of information
- * indicate the form is voluntary
- * describe the process of filling it in and posting it directly to Head Office (or where ever data entry is to be undertaken)
- * describe how that information will be used by the company, and ensure the form does NOT include the name of the exiting employee.

The departing employee should then be left alone, with a request to fill out the form, and post it in the self addressed envelope provided²⁰.

²⁰ Literacy could be an issue for some people, in which case a trusted independent person would be needed to read the form and record the answers for the exiting employee.

Exit interview data collection sheet

Date of survey				
Type of separation rearies	igned irement	company transfer contract expired	redundancy dismissed	
Position (or occupational g	roup)			
Length of serviceyea	months			
CONFIDENTIAL SECTION	N			
Age	Gender			
Family status (please circle): Currently sin	gle, separated or divo	orced	
	Currently par	rtnered or married		
	No. of depen	dent children		
Typical work pattern (n	ghts, days, day o	off, shift length)		
Optional data fields () Optional data fields ()				

What influenced you to leave? (This list needs to be iteratively developed at the company or industry level.)

	Not				
Reasons for leaving	<mark>importa</mark>	nt			important
Career progression or change	1	2	3	4	5
Return to study	1	2	3	4	5
Increased pay elsewhere	1	2	3	4	5
FIFO/work roster impact on family	1	2	3	4	5
FIFO/work roster impact on self	1	2	3	4	5
Other personal reasons, (eg partner's work opportunity, family education)	1	2	3	4	5
Personal health reasons	1	2	3	4	5
Dissatisfied with job on site	1	2	3	4	5
Dissatisfaction with management on site	1	2	3	4	5
Dissatisfaction with conditions on site	1	2	3	4	5
Conflict on site	1	2	3	4	5
Other	1	2	3	4	5

Where are you going next (circle one)?

Another mining operation (FIFO) Another mining operation (town-based) Other work in mining Leaving the industry Not working

Appendix 3

Seven questions to assess employee turnover on site

The following is a self diagnosis process for managers to assess employee turnover on site.

1. Firstly, what is known about the employee turnover rate on site?

What was the employee turnover rate at the mine site for the last five years?

Is it climbing, stable or falling?

What is: (1) acceptable, and

(2) optimal employee turnover for this mine site?

How does employee turnover vary across occupational or operational groups?

What information is available about employee turnover amongst contractors on site?

2. Does this account for all the exits on site?

Implement a turnover definition that includes all exits that result in a vacancy on site. This may require an additional data field in the HR systems currently used.

Determine the operational definition of employee turnover used at the mine. Ensure it does not include redundancies and it does include transfers off-site. Adjust the turnover rate accordingly. (Refer *Appendix 1 Suggested* definitions and data recording fields, page 49.)

An employee turnover rate within an acceptable range, and without any hot spots in different sections of the mine, indicates that employee turnover is not currently an issue at the mine.

3. How much is employee turnover costing the mine in dollar terms?

A financial measure will provide a sense of the scale of the problem. Every dollar spent on unwanted employee turnover represents funds, expertise and time that is not utilised in more productive ways on site.

Currently a detailed costing of employee turnover for use at mine sites is not available. Estimates (derived from the wider human resources literature) can be used, however, these are very crude measures, they do not factor in some key parameters encountered in the mining industry, such as the extent of travel and relocation expenses associated with recruitment, training requirements or the cost of casual replacements. Hence, conventional estimates are likely to underestimate the real replacement costs of positions in the mining industry. However, until such time as replacement costings for the mining industry are developed, these estimates are useful.

Refer to the text box in Section 5.2 (*Perceived Costs and Consequences of Turnover*, page 29) for an estimation of turnover costs at an 'average' FIFO mine and to *Appendix 4*

A framework for estimating separation costs (page 57) for a list of inclusions for a costing of employee replacement.

4. Who is leaving and why?

Review all the information available on site. What areas have higher turnover than others? Can the available data indicate what the causes might be? Essential data may not be readily available. Determining what information is needed is the start of designing an evaluation strategy.

5. What HR policies are in place? What was *meant* to be work – but isn't?

It is important to have a clear list of the strategies and policies that are intended to minimise employee turnover. Often it cannot be determined whether policies or strategies have a positive effect on employee turnover from the data in hand. Additionally, many policies are not directly focused on employee turnover, although reduced turnover is still one of the intended outcomes.

How much are those policies costing to implement? What other objectives were to be realised with that policy? Are they successful?

If the above questions cannot be answered with the data available, external assistance may be required to design an evaluation process.

6. Design a policy to address the issue

Clearly this is a vital stage that will need the input of the site management team, possibly with external support and in consultation with the workforce.

This study has identified a range of strategies to minimise employee turnover that were utilised by the participating mine sites (refer to Section 5.4; *Strategies for dealing with employee turnover*, page 33). These include:

- strategies to manage green recruits
- recruiting for person-organisation fit
- altering the FIFO schedule.

How applicable these strategies are to other mine sites can only be assessed on a site by site basis.

7. Finally, evaluate and monitor progress

Once time and money has been invested on an issue of importance to the operational efficiency of the mine, it is important to determine if that is money well spent.

Evaluation enables the effectiveness of strategies to be assessed. Should the strategy be on-going? What, if any, adjustments need to be made?

Ideally the evaluation process would be designed concurrently with the development of the strategies to reduce employee turnover, but it can be done as a discrete step. The value in evaluating performance is three fold:

- to know what's working and why
- to maintain positive momentum through recognition and feedback to those doing the work
- to share experience and learning with the wider company.

A cautionary note.

The seven steps outlined above offer a practical framework to assist management to assess the issue of employee turnover at the mine site and at least start to address it. However, two things must be kept in mind.

Firstly, without data to test and lend weight to opinions about who is leaving and why, this process may lead to expensive strategies that achieve little.

Secondly, it is important to have a realistic assessment of the working culture on-site. HR strategies need to engage with the site culture to be maximally effective.

Appendix 4 A framework for estimating separation costs

Cost - what can be quantified in dollar terms

Turnover costs are the sum of three major separate cost categories; separation costs, replacement costs and training costs (Cascio 1982). We have included vacancy costs as a fourth source of financial loss (Pinkovitz et al 1997).

Exit interview cost	<pre>cost of interviewer's time (preparation time + interviewer time + collation time) * interviewers' hourly rate * number of interviews cost of terminating employees time (preparation time + time for interview) * exiting employees' weighted average pay rate</pre>
Administrative functions related to termination	time required by personnel department * average personnel department pay rate
Loss of productivity	Estimate 'wind down' period, time spent in knowledge transfer, and/or production lost from abrupt departure. Estimate as percentage productivity*daily salary*number of days in 'wind down' period. The length of the 'wind down' period and the degree of productivity lost is affiliated with lowered job commitment. Loss of productivity may involve carelessness (eg increased maintenance costs, delays or substandard work) and even acts of sabotage (eg obstructive behaviour,).

Separation costs: Sum the following

Vacancy Costs

Hire of temporary replacement	time*average hourly rate of temp, less wages saved from vacant position
Additional work demands on remaining workers	Estimated costs of additional overtime + lost value due to work being postponed.
Under-utilised equipment	per cent of daily productivity lost (eg trucks idle) * number of days

Replacement costs

Communicating job availability	employment agency fees and/or time of in-house personnel for advertising and processing applicants to short list * average pay of personnel department employees
Pre-employment administration	hours (information dissemination process to applicant, short listing, arranging interview time) * average pay of personnel department employees
Entrance interview	hours (preparation and interview) * interviewers' hourly rate travel and accommodation expenses for each interviewee
Selection committee meetings	hours spent on making decision * combined hourly rate of meeting attendees
Testing & verification	hours taken for administration of skills tests & psychometric tests, reference checking, authenticating qualifications * average hourly rate for specialist HR functions
Post decision administration	hours spent on writing letters, further information support and system administration * average pay of personnel department employees
Pre-employment costs	(medical if applicable), housing, transport and other costs to the company

Training costs

Information materials	Unit cost of information package
Instruction and orientation programs	Sum the cost of each training program needed:
	(length of training program + preparation time) * trainer hourly rate)
	(length of training programs * hourly rate of new employee)
	cost of facilities and other overheads
Instruction on the job ²¹	hours of meetings and other instruction time * new

²¹ Cascio (1982, page 30-31) has a fairly loose approach to this. For example, he did not include the instructors hourly rate in his calculations. Clearly, cost inclusions will depend on the positions and how the company manages new employees. The mining industry is best served by a separate calculation of replacement costs for several different occupations. These need to be tested against multiple sites to establish a standard multiplier for mining industry occupational groups.

	employee's pay rate)
	hours of meetings and other instruction time * instructors pay rate must be for full period of orientation
Loss of production for orientation period	Estimated per cent productivity for new employee until they are fully operational * orientation period.
	NOTE: This will vary according to level of experience, type of work, and amount of on-the-job instruction.
Appendix 5

Data Collection Tools

The following data collection tools were used to ensure that, as far as possible, a standard set of quantitative data were collected from each site, and a standard range of issues were discussed during interviews.

Additional data were collected as they were made available at different sites.

Turnover Project: Data request

1.	Name of Site:								
	Is the workforce at this site:	FIFO or DIDO?	T % FIF	own Based	<u>д</u> ? %Том	n hase	ed .		
2.	Personnel turnover on the	e mine site in gen	eral	orbibo,	/010W	n ous	Ju		
	What is the current annual turnover rate?			, Does this include contractors? YES/ NO					
3.	How is the turnover rate calculated at your mine site?								
	Does this calculation include the following: (indicate those included)								
	□ Permanent employees leav	ving the company		Contract	employees	leavi	ng and	creating	
	\Box Employees who are sacked			a vacancy					
	\Box On-site transfers that creat	te a vacant position		Internal positions	transfers s;	to	off-site		
	□ Retirees			□ Deceased persons					
	□ Retrenched employees								
•									

3. Are there trend data available? *YES/ NO (please attach any reports if available)* Have any specific events influenced the turnover rate at this site? (For example: changes in roster, mine downsizing.)

4. The mine workforce in general

Workers on Site:	No.	Typical work pattern (eg days, nights/ off)	Turnover rate
Company employees			
Management			
Operations			
Maintenance			
Processing			
Contractors at this mine			
maintenance			
camp			
other			

5. Does your site cost turnover? Yes/No

What costs are included?

6. Contact person on site _____

Turnover Project: Interview Outline

1. Discuss the characteristics of the employees in general

Check: How much is supported by data on file?

- □ number of employees
- □ gender
- □ age
- □ family status
- □ home region (do they travel a second journey between home and site?)
- **u** Cultural composition of employees (eg proportion of aboriginal employment)
- □ Culture of the workforce generally how would HR describe their workforce?

2. Discuss how personnel information is stored

Individual data files, on paper forms, human memory.

- □ How is data collected?
- □ Can I have a (blank) copy of the normal new employee form?
- □ How easy is access to the data and cross referencing of the data fields in this form?

3. Personnel turnover on the mine site in general

What has been the turnover for this mine for the last 5 years?

- **1998**
- **D** 1999
- **u** 2000
- **a** 2001
- **D** 2002

What events have influenced the turnover rate? Discuss history of the mine.

4. How is the turnover rate calculated at your mine site?

Most mines have different inclusions and exclusions in calculating their turnover rate.

(This will have been covered in the Data Request sheet)

Double check and discuss.

5. How is turnover data used on site?

- □ time series?
- □ monthly reports? Who for?
- □ do you keep a record of absenteeism/sick leave and compare with turnover?
- □ Performance measure for this site? Operational sections? Contractors?
- □ What do mine management want to know from labour turnover stats?
- What is optimal turnover?
- □ In your <interviewee's> opinion, what are the upper & lower critical limits for turnover?
- □ What level of turnover can be sustained before you recognise strains on site?

6. Turnover is a lag indicator. What are the symptoms on site that turnover is too high?

- □ do some occupational groups have higher turnover than others?
- do some demographic groups have higher turnover than others?
- do some work roster patterns have higher turnover than others?

7. Costs of turnover

Review Data Request sheet, question 5 and discuss in general.

□ What do you think is the biggest cost to the mine of personnel turnover?

8. On the whole, what are the main reasons for people leaving?

9. Does your mine have targeted policies or practices for achieving or maintaining low employee turnover?

- Do you have affirmative action initiatives for women, indigenous people or others?
- □ Are there any restrictions on what you can and can't do, such as a limit on the camp size restricting the absolute number of employees?

10. Exit interviews

- □ Are they conducted with all people who leave, or only those who resign?
- □ Can I have a copy of a blank form?
- Are these interviews entered into a data base?

□ Are there differences between occupational groups, gender, FIFO schedule?

11. Some points of comparison

- □ Base annual salary for truck driver -----
- □ Base annual salary for loader operator -----
- □ 12-hour shifts?
- **D** Do you have annual bonuses
- Do you have a retention bonus?