**Preventative and Holistic Management of Health
In a Global Mining Industry**

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INTRODUCTION

Health is an issue that is growing in importance in the management of the most important resource that a Company has – the workforce. People should not expect to have their health put at risk as a consequence of having employment, nor should an employer take the risk of employing an individual who is not fit to perform a designated task.

If a company is going to be successful in the future it will need to provide an environment where health issues are well managed and the employee has an expectation that there will be an overall enhancement of their health status through employment. Mining engineers have important responsibilities in these regards.

When I started working in Occupational Health in Melbourne in private industry and then later for BHP in the late 1980's, the H in Health, Safety, Environment and Community (HSEC) was in many ways a small h. Management of health issues was often the domain of the Safety professional. Certainly, there was little interaction with or input from the engineers involved in operations and management.

Fortunately, attitudes to health are changing. This is illustrated in the BHP Billiton Company Charter, which outlines a commitment to people and their associated health. BHP Billiton employs more than 100,000 direct employees and contractors in over 40 countries. It is the largest diversified resources company in the world.

The BHP Billiton Charter expresses:

> *A desire to – "earn the trust of employees, customers, suppliers, communities and shareholders by being forthright in our communications and consistently delivering on commitments ".*

> *Value for people – "An overriding commitment to health, safety, environmental responsibility and sustainable development".*

The Charter commits the Company to providing support for initiatives in Health. The continued challenge I face is to provide executive and line management with an understanding of the key health issues in the workplace and to develop strategy and tools to meet the corporate health objectives. This includes an understanding that positive outcomes are dependant in many cases on a consistent approach in the medium to long term as many health issues are associated with a longer latency period.

There is a vast array of health issues that need to be managed in a modern mining company that operates in a global environment. In some ways these issues can be looked at in terms of a continuum from work factors which impact the health of an employee through to employee health issues that have impact in the workplace.

Some examples of work factors that impact directly on the health of an employee are:

- Exposures from work processes – e.g. noise or potentially cancer causing substances such as asbestos. sulphuric acid, nickel dust or diesel particulate in underground mines.

- Travel – the effects of jet lag, exposure to tropical illnesses in remote locations such as malaria, dengue fever or possibly an outbreak of SARS or Avian Flu.

- Remote locations – lack of access to medical care which can lead to poor outcomes in serious injuries or illnesses.

- Psychosocial effects of work – movement of families, long work hours causing fatigue, stress and associated effects such as depression.

Examples of employee health issues that may impact the workplace and need management include:

- Employees with chronic illness causing a decreased capacity to work – It is estimated through voluntary anonymous testing that 14 per cent of our direct employees in South Africa are carrying the HIV virus.

- Employees suffering from stress or depression due to lifestyle issues.

- Drug and alcohol dependence.

- Normal aging processes – some of our sites have an average workforce age in the 50's.

HEALTH STRATEGY

The diagram below represents an outline of how I represent the challenges in respect of our health strategy. Site based exposure issues impacting the health of employees will be of a more generic nature and are therefore more open to being addressed through standardised company programs and guidelines. It should be noted that not all health impacts of operating a business are negative and there are significant positives associated with the health of the workforce, communities and customers.

Issues involving communities and customers are more open to outrage factors if the business is perceived as a cause of the issue. These issues therefore need to be addressed with expertise in a timely manner. Customer based health issues will be linked to activity in the Product Stewardship arena. Product Stewardship from a health perspective means taking responsibility for the health impact of your product at all stages of its life cycle - extraction through delivery to final utilisation and longer term disposal – a "cradle to grave" involvement to ensure that any potential heath impact is managed appropriately. Product stewardship will equally apply to the safety, environment and community arenas.

Involvement in support of management of community based health issues that may impact an operation will depend on local business policies and a measure of the impact the specific health issue is likely to have on that business.
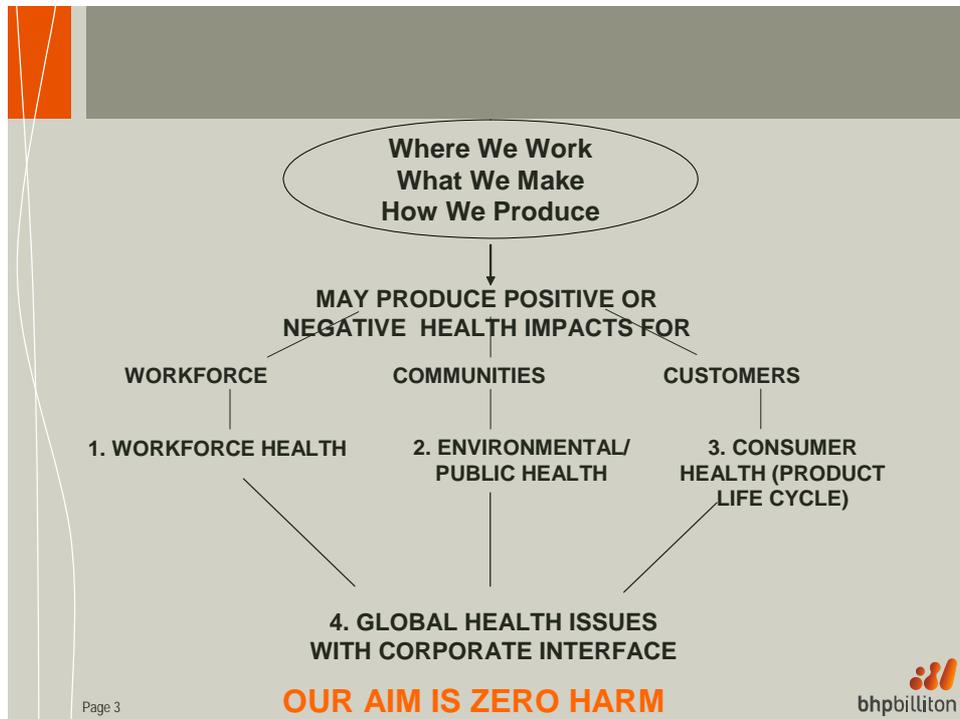
Setting Health Targets - it is important that the Company has some primary targets for managing major issues in health. By having these targets there is a primary vehicle to be able to introduce these issues into the long list facing site and business managers and enable them to build an associated strategy for delivering outcomes. These targets will be part of the manager's performance review and in this way will get leverage in business planning initiatives. The targets, therefore, cannot be numerous and must be focused on those issues with high priority. At present these are primarily associated with the workforce and minimising adverse exposures and, hence, reducing incidence of occupational illness. The current targets for health are:

- To complete a baseline survey of exposure at all sites by June 2008 – this means that all exposures have been measured to understand what the potential exposure for each substance or physical factor may be for any particular work group on site. This will include all chemical, physical and biological exposures on the site.

- To reduce potential exposures that are occurring above the occupational exposure limit to employees by 15 per cent by June 2012.

- To reduce the incidence of occupational illness by 30 per cent by June 2012.

EMPLOYEE HEALTH

In respect of developing standardised processes across the Company, employee health is the strongest focus. There are three key areas of employee health that require focused attention:

- Occupational Hygiene – the management of work based exposures such as noise, chemicals and dust that can be harmful to health
- Fit for Work / Fit for Life
- Global Travel Health

Occupational Hygiene

The focus of work in the area of Occupational Hygiene is:

- To develop a standardised Company approach to monitoring and measurement of exposures.
- To link the professionals in this area through a network model
- To optimise the effect of personal protective equipment
- To focus on a reduction in employee exposure

This focus is represented in the following schematic representation:
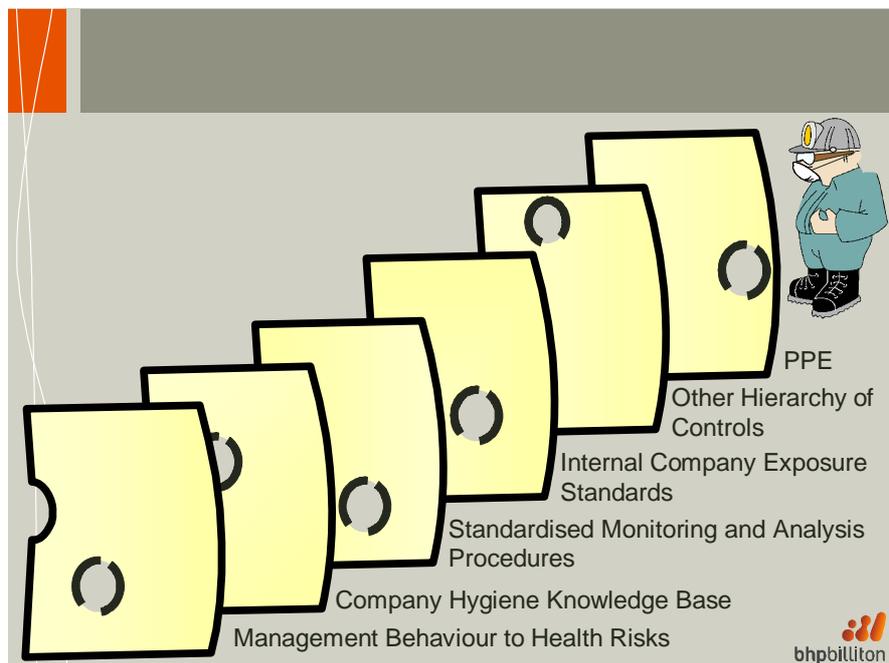
As can be seen in the diagram a full program in Occupational Hygiene requires not only sound personal protective equipment (PPE) at the front line. It also requires other programs to reduce exposure which are part of a "hierarchy of control". This may include reducing exposure through simple administrative control of rosters or

progress to more complex changes in process to eliminate the exposure or changes in engineering to markedly reduce or contain the exposure.
Systems and standardised measurements are important for a program so it is ensured that exposure is measured and reported to the most up to date requirements and exposure levels based on current science and research. This requires well trained and experienced technical professionals who are able to keep up to date.   These professionals need support from management who understand health issues on the site and are motivated to prevent harm to health. These managers need to discuss opportunities with the technical specialists to reduce exposure by investing capital in longer term projects.

There have been a number of key Company documents that we have introduced which have supported the standardisation of occupational hygiene practice throughout the Company as follows:

- Occupational Exposure Limits Procedure and associated Position Documents

- Health Exposure Assessment Guideline

- Health Surveillance Guideline

- Hearing Conservation Guideline

- Respiratory Protection Guideline

- PPE Compliance Auditing Guideline

Hygienists' Community of Practice.

This network of technical specialists in the discipline is one of the most mature in the Company. It is a key factor in the standardisation of processes in the area, sharing of information and developing knowledge.

Through the Community of Practice (CoP) intranet site (depicted below) the group is able to communicate globally in both formal and informal bases and store information and developing documentation. Annual regional meetings in Australia, Africa and the Americas where important face-to-face interaction occurs support the electronic interaction.

Hi Peter, welcome to the Occupational Hygiene community.

Home

Description: Contains information relating to Occupational Hygiene

Purpose: To allow occupational hygiene information to be shared across the businesses.

Unregistered users will have read only access.
Register now if you wish to participate in the CoP.

Communities
of
Practice

Recent News

You can submit news items, such as current happenings in the community, on the news page. These items will also be posted to the community if email is enabled.

Recent Submissions

Q DS-1000 Docking Station Information Item posted by Paula Sunner Does anyone have: 1. Calibration and instru [13-Feb-2006]

Q DS-1000 Docking Station Information Item posted by Paula Sunner Does anyone have: 1. Calibration and instru [13-Feb-2006]

A RE: Asbestos Exposure - Health Management NOHSC code of practice fro safe removal of asbestos - australian government NOHS [20-Feb-2006]

Q Respiratory protection Has anyone defined frequency (months/ years) of cleaning and maintenance of Air [20-Feb-2006]

Member Profile

Below is the latest member to join or to update their member profile.

Frank Harris
Radiation & Occ Hygiene Superintendent
...More

You are visitor No. **803** to this CoP since **4-Jan-2005**
Last Change Date: **3-Mar-2006**

The network model will be an important component of continuous improvement in Hygiene. There will be continued face-to-face meetings within the group to enhance the professional interaction.

There is limited further documentation required for the group and focus will be more on application at the operational level. This will be improved through site interaction to ensure programs are operating to company standards. The site interactions will be facilitated at a regional level though visits conducted by network members.

There will be a continued strong link with other networks to pursue improvement of Occupational Hygiene Programs within specific businesses. This will also occur in the pursuit of specific programs aimed at exposure management and reduction.

An example of this is the Diesel Particulate Initiative where all underground mining operations in the Company have been visited to implement a program of diesel emission management. Diesel particulate is a known cancer-causing chemical. In any given underground mine there may be as many as 100 vehicles in operation which emit diesel exhaust. The Company has some 14 large underground operations worldwide.

The initiative was pursued in conjunction with the Mine Operations Network and the Global Maintenance Network. A detailed manual that clearly outlined in a practical manner an approach to this area supported this initiative. This included information on servicing and maintaining diesel engines, a key factor in minimising exposure.
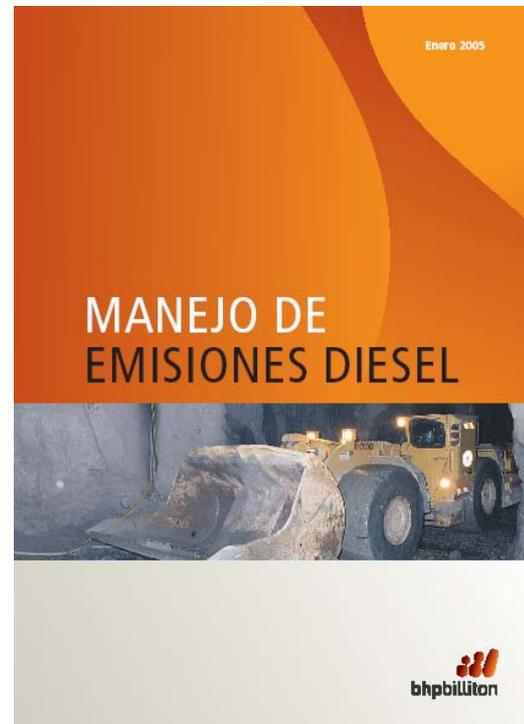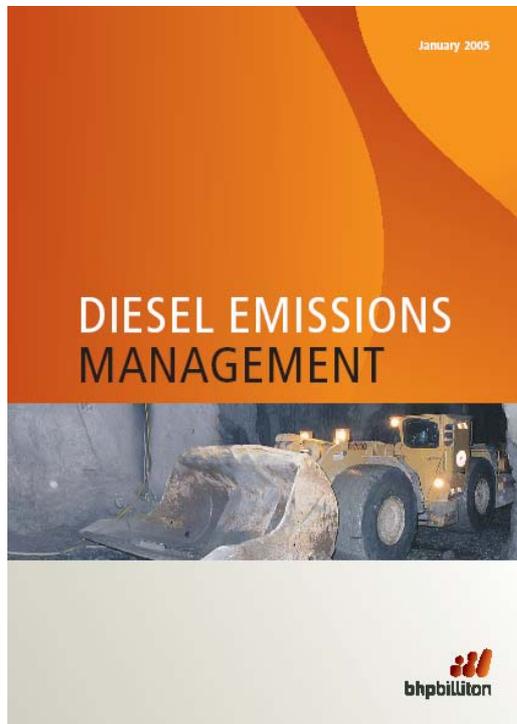
Opportunities are being sought in other exposure areas to implement Company wide exposure reduction programs.   This is particularly important for exposures that can potentially cause cancer. Examples of this include an extensive program in the Nickel operations to reduce dust on site both in the mining and processing areas. Nickel dust can potentially cause lung cancer if exposure is too high. Associated with this activity is an extensive monitoring of urinary nickel concentration in potentially exposed workers to assess the longer term success of these exposure reduction programs.

 The Copper group is looking at new technology to cover the processing of copper concentrate. This processing requires use of sulphuric acid and the associated mist created, if breathed in high concentrations, may cause cancer of the larynx. The technology is a layer of synthetic material which will enclose the mist but still allow the important movement of gases from the process.

Occupational Health – Fit for Work / Fit for Life

We believe another area of Health that needs more concerted efforts and focus is in the area of "Fit for Work / Fit for Life". Whilst many operations may have had an approach to this area in the past and, in some cases displayed leading practice, there had not been an overall Company approach that provided guidance on how all these areas needed to be approached.

For the diverse range of these occupational health issues I needed to find a vehicle to gain some leverage in the Company. The Fit for Work / Fit for Life initiative covers a wide range of occupational health issues and offers a "marketable tag" to gain management attention and allow presentation of the issues. The areas covered under the guidelines are as follows:

- Drug and Alcohol Programs
- Fatigue Management Programs
- Medical Assessment Programs
- Travel Health Programs
- Ergonomic Analysis
- Occupational Rehabilitation Programs
- Health Promotion Programs
- Employee Assistance programs

The focus of the Fit for Work / Fit for Life Initiative has been to:

- Develop a network around these issues involving a diverse range of HSE Professionals

- Develop core generic Guidelines and Toolkits that can be applied across the company

- To establish a highly functional CoP Leadership Team to take the Initiative forward.

Similarly to the area of occupational hygiene the network focus will be an important part of taking this initiative forward. A Global Practice Leader Fitness for Work has been appointed and tasked with the role of developing this network to improve management of these issues. A Community of Practice intranet site has also been developed to link these professional.

Fatigue

Fatigue is one of the more important issues addressed in the guideline. Company wide there is a monitoring of incidents that involve actual or potential harm to our employees. These are known as significant incidents. An assessment of significant incidents at our sites has indicated that for those incidents where a health related factor is a primary cause, fatigue is implicated in more than 50% of these cases.

Fatigue has become a key strategic focus for health. A Practice Leader in Fatigue Management has been appointed to assist in ensuring all Company operations have developed appropriate programs in fatigue management.

Personal Health

One of the areas of the Fit for Work / Fit for Life Initiative is the important area of health promotion. The maintenance of personal health is very important in an organisation that operates globally and requires that management in particular are highly mobile and able to respond to travelling and working in changing time zones, climates and cultural settings.

The aging workforce is an industry wide issue for mining as many employees are hoping to complete their employment in roles that continue to place physical demands on them. Keeping experienced employees in these roles is very beneficial to an employer in terms of both productivity and safety. The workplace response to this needs to incorporate site based activities with ongoing health and fitness programs that influence employees into activity outside the workplace.

Stress is an important aspect impacting the workplace and it needs to be ensured that all businesses have health promotional activities that attend to preventive aspects and also access to reactive services such as Employee Assistance Programs when counselling input is required. It is important for an individual to be functioning within the appropriate environment with respect to stress to achieve peak performance and productivity and protect their long term health.

Fit for Work / Fit for Life Strategy going forward

Similarly to the Hygiene area the network model will be critical to ongoing development of the Fit for work / Fit for Life area. Diversity of issues requires a strong CoP structure and leadership team.

There will be development of further documentation particularly in the form of toolkits to assist operations in implementing the Fit for Work / Fit for Life Guidelines.

It is envisaged that the Element Champions for the Community of Practice representing each of the sub disciplines in the guidelines will have an important role in fostering regional and business involvement in the process and recruiting interest in the CoP.

Occupational Travel Health - Global Health Assist

Travel is another important aspect of the Fit for Work program and sophisticated programs have been developed throughout the Company to support this, including the "Global Health Assist Program". There are more that 1500 employees and dependants living outside their home countries as a consequence of relocation for the Company. Further to this there are between three to four times this number of employees who will travel internationally on a reasonably regular basis for the Company.

We have put a lot of energy into this area over many years. The key areas of the program include:

- A global 24 hour response to all medical issues relating to Company employees and dependants. This information is on the "Global Health Assist Card".

- A global network of travel health providers to prepare employees and dependants for travel and relocation

- Global Health Assist Guidelines which outline the recommended approach for travel preparation including required vaccinations, travel and first aid kits, malaria management and medical examination
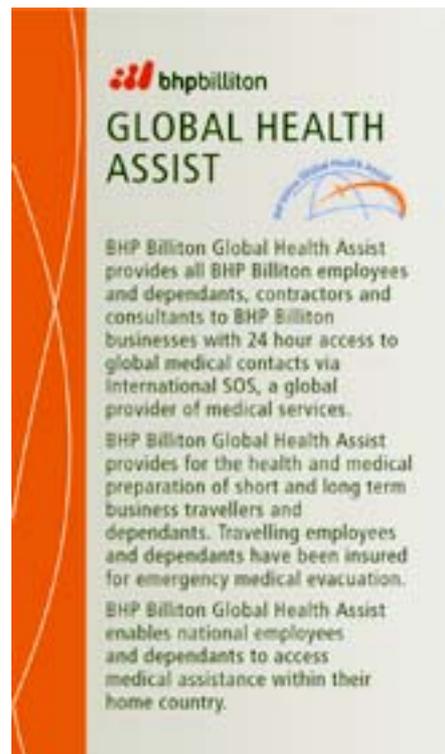
COMMUNITY AND ENVIRONMENTAL HEALTH

Community health issues, which impact on our businesses, are an important area of our health management. From a global perspective, as many of our operations are in areas where HIV, TB and malaria are prevalent there has been a strong focus on these public health issues. As a consequence we continue to direct attention to these areas and there are several programs of global significance:

- Southern Africa spraying program – An insecticide spraying program in the countries of Mozambique, Swaziland and South Africa which has markedly reduced malaria mortality, particularly in children. This program has now received funding from the U.N Global Fund to extend activity. This commenced in 2003 and there is commitment to fund the program through 2011 currently at a level of USD 42.7 million.

- Hospices – The development of HIV / AIDS treatment hospices in a number of our South African sites to assist the community with this issue.

- AIDS treatment – There is universal medical insurance for all employees in South Africa to provide antiretroviral treatment for AIDS if required. The insurance will also extend to family members for similar treatment provision.

- AIDS research - Financial support has been given to an Australian company refining a new treatment for AIDS that can be given by injection every few months. This is an ideal form of treatment in South Africa and other resource poor countries where delivery of standard treatments is difficult.

- TB study – A project in Northern Canada to detect and treat latent TB in the local indigenous population both in our workforce and the associated communities.

As well as these programs that focus on global infectious disease risk there are numerous smaller site based initiatives throughout the Company focusing on local issues such as:

- Brazil – a community program to educate on the importance of dental care in children which has shown a reduction in tooth decay monitored at local schools.

- Pakistan – provision of five local clinics and improvement of local hospitals in the remote region around the gas plant which the Company operates.

- Trinidad – support of a local clinic to provide Yellow Fever vaccination to the community where this is prevalent.

Many of the site based community health initiatives are recognised through the Company annual HSEC awards.

Environmental Health issues that are either directly related to our operations or perceived as being linked are an important facet of our health strategy. These issues need to be managed very proactively.

An example of an environmental health issue which affected one of our operations was when a new refining process caused an odour to be emitted from the gas stacks on site. Although not proven, many people in the community attributed ill health to the odour and over time there was a strong ground swell of community disapproval. Only by closing the process down and instituting major engineering changes to reduce the odour, then spending much time communicating with factual evidence the lack of link to health impact from the odour was a serious situation avoided.

Environmental Health issues need to be managed through a diverse range of professionals both within the HSEC framework and external to this. Due to the complex nature of these issues, interaction of networks and professionals will be important in managing these aspects going forward and network structures need to be further developed to align with this.

 - Community and Environmental Health strategy going forward

For both of these areas there needs to be a network from Health into the relevant Community and Environment Networks to ensure linkages are established on these issues.

For Community Health the focus will be on the major issues of TB, HIV and Malaria from a global perspective. There will be many other local community health issues at an operational level that will still be supported.

Detection and management of Environmental Health issues needs to be enhanced through better incorporation into risk management processes. A Health Risk Assessment toolkit will be developed during full year 2006 that will assist in better understanding and management of Environmental Health issues.

CONSUMER HEALTH

The management of Consumer Health issues will be closely aligned with the Product Stewardship Program that is currently being developed in the Company.

This program recognises that there should be a shared responsibility by all players in the life-cycle of all of the 26 commodities that BHP Billiton produces to ensure that no harm comes to people and the environment as a result of those commodities.

Being at the start of the life cycle as the provider of those commodities, BHP Billiton has taken a lead role in building relationships with the other key stakeholders to develop best practice. To date we have helped to initiate programs that have included lead (the Green Lead program), copper (through the International Copper Association's Copper Stewardship program), diamonds and gold (the Council for Responsible Jewellery Practices) and the development of a Uranium Stewardship Working Group (through the World Nuclear Association).

All of these programs track the use of the respective commodities in a cradle to grave system to ensure that at no stage in the mining, processing, transportation, manufacturing, use or recycling/reuse/disposal of product is there a potential for those commodities to cause harm.

-   Consumer Health strategy going forward

There will need to be continued close alignment and Health representation on Product Stewardship Networks to ensure that health issues associated with this area are appropriately addressed.

SUMMARY

The mining industry has numerous challenges in Health going forward. The mining process exposes the workforce to a number of potentially harmful substances and physical environments that need to be carefully managed. Many mining companies operate in countries with inherent health risks due to the geography, climate, local community health issues or remote location. The employee needs to be fit for work in these environments and also as they encounter the changes in health that accompany aging, illness or the stresses of everyday life.

From a community perspective, mining operations cannot be separate in terms of the perceived impact they may have and this extends to any aspect that may be perceived

as harmful to health. Perceptions may not be well founded or based on fact, however, they will need to be carefully addressed. A mining operation that has strong links with the community, both directly and through the employees, will be better able to utilise these links for communication.

Many companies express a view of the importance of people by stating an overriding commitment to health, safety, environmental responsibility and community objectives. If people are valued within these organizations, fitness for work issues and health exposures must be managed so as to not adversely impact the well being of the workforce. A stronger workplace health focus also assists in improved safety.

The implementation of the Health programs outlined and the dissemination and improvement through the Network structure have been part of my approach to impact on the incidence of occupational illnesses and health related incidents. There is still much work to be done in moving Health from the small h to the large H and truly meet the objectives that are outlined in documents such as the BHP Billiton Company Charter.