

# 25 HEALTH AND SAFETY

## 25.1 PUBLIC HEALTH AND SAFETY

### 25.1.1 TRANSPORT SAFETY

#### Issue:

Further information was requested on how BHP Billiton would respond to a transport incident involving copper concentrate and radioactive material.

**Submissions:** 44 and 309

#### Response:

##### Rail/road transport

An incident resulting in the spillage of material would be treated similarly to any incident involving a metal concentrate.

The main response would be to ensure the physical safety of the train crew and any others involved in the accident.

Copper concentrate is only mildly radioactive and would not interfere with any recovery operation.

The main two exposure pathways during an incident would be gamma radiation and dust inhalation. To minimise the spread of material and possible dusting, any exposed concentrate would be covered with tarpaulins and the area would be secured.

A team from BHP Billiton would arrive to assist local emergency response crews with the clean-up.

Radiation exposures to workers during the clean-up would be well below the dose limit for members of the public, and therefore standard precautions and clean-up methods could be used. For example, (to illustrate this point), a person would have to stand in the concentrate for more than one week before they would receive the dose limit for members of the public from gamma radiation. Similarly, they would have to remain in the spillage, under quite dusty conditions, with no protective equipment, for a similar period to receive the dose limit for members of the public from inhalation of the dust.

The transport of all substances (including those that are dangerous or hazardous) must comply with all relevant state and national transportation requirements. For example, in South Australia, there are the Dangerous Substances (Dangerous Goods Transport) Regulations 2008, under the *Dangerous Substances Act 1979*. In addition, there is the Australian Dangerous Goods Code 2007 that covers the specific requirements for the transport of various substances.

In the event of a spillage during transport, local emergency services along the route would provide the immediate response. In the event that the spilled material contained radioactive material, BHP Billiton would provide the necessary technical support and advice. BHP Billiton would also provide the necessary additional training for emergency response personnel along the transport routes.

There would be no need to evacuate an area due to the spillage of concentrate from a train derailment. In the unlikely event that a derailment did occur, and concentrate did spill from the sealed wagons, the area would be cordoned off to enable the concentrate to be recovered and the area cleaned in a prompt and orderly manner.

##### Sea transport

Dedicated vessels would be used to ship concentrate that contains uranium between the Port of Darwin and overseas ports, nominally in China. These vessels would use active route management planning, which takes account of a number of on-route issues such as established shipping lanes, weather conditions, piracy and other related matters.

As is industry standard practice, the first priority in any incident would be the safety of the vessel's crew. Thereafter, whatever the nature of the incident (i.e. sinking, running aground or a collision) or its location, many factors would influence what action would take place (i.e. salvage, clean-up, recovery or leave-*in situ* approach). These factors include (but are not limited to) the safety of those undertaking the response operation, the condition of the vessel, weather conditions, the ship owner's views and the response

of the insurers, governments and the owners and insurers of the cargo. If loss of containment occurred, the extent of the exposure would be assessed, taking into account the circumstances of the incident, to determine the impacts or otherwise of any attempts to recover the copper concentrate containing uranium. The international laws of the sea govern any salvage operations and would determine the fate of the vessel and its cargo of copper concentrate containing uranium. BHP Billiton would comply with these regimes.

**Issue:**

BHP Billiton was asked to assess the impact of the proposed expansion on road transport casualties (including standardised casualty costs), in addition to the road transport fatality impact assessment as presented in the Draft EIS.

**Submission: 2**

**Response:**

The Draft EIS focused primarily on fatal accidents because this data is collected across Australia in a standardised manner. This is not the case for accidents where the injuries are not fatal.

The Draft EIS does refer to total accident rates (refer Section 22.6.9) and noted that it is not anticipated that the rates (as measured in accidents per total distances travelled or the accidents per unit population) would increase as a result of the proposed expansion. However, the Draft EIS did note that the number of accidents could increase in direct proportion to the number of vehicles travelling and the increased total distances travelled.

In response to the submission received, further work has been done to assess the impact on non-fatal accidents, including those involving buses. The estimate of additional casualty crashes as a result of the expanded operation can be seen in Table 25.1. The briefing note (Assessment of impact of Olympic Dam expansion on non-fatal road accidents May 2009) is provided as Appendix L1 of the Supplementary EIS.

**Table 25.1 Calculated potential additional casualty crashes due to expanded Olympic Dam traffic volumes (compared to existing situation)**

	Potential additional casualty crashes per year/(Existing casualty crashes per year)						
	Two Wells to Port Augusta	Stuart Highway (Port Augusta to Pimba)			Olympic Way		
		Heavy vehicles	Heavy vehicles	Light trucks and buses	Cars	Heavy vehicles	Light trucks and buses
Phase 1	0.3 (13.3)	0.6 (2.4)	0.4 (0.8)	3.8 (7.8)	0.4 (0.7)	0.2 (0.3)	1.8 (2.4)
Phase 2	0.6 (14.3)	1.2 (2.9)	1.0 (0.9)	9.5 (8.3)	0.7 (0.9)	0.5 (0.3)	4.5 (2.9)
Phase 3	0.02 (15.1)	0.6 (3.1)	1.1 (1.1)	10.5 (8.7)	0.3 (0.9)	0.5 (0.3)	4.9 (3.1)

Casualty cost information has been used to assess the financial impacts of fatal and non-fatal casualty accidents. The Centre for Automotive Safety Research (CASR 2006) provides figures for casualties in 2004 dollars. The figures take into account the following costs: lost labour in the workplace, household and community; hospital and other medical; long-term care; legal; workplace disruption; vehicle damage; emergency services; property damage; travel delays; and quality of life. The figures used are:

- minor casualty cost – \$14,343
- serious casualty cost – \$390,922
- fatality cost – \$1,804,257.

Table 25.2 shows the results if these costs were applied to the risk numbers for such events in relation to the proposed Olympic Dam expansion.

**Table 25.2 Calculated casualty costs for proposed Olympic Dam expansion**

Casualty severity	Number of casualties during construction <sup>1</sup> (per year)	Number of casualties during expanded operations (per year)	Cost per casualty in 2004 dollars
<b>Minor and serious casualties<sup>2</sup></b>	25.5	17.92	\$202,632
<b>Fatalities<sup>3</sup></b>	1.3	0.9	\$1,804,257
<b>Total cost</b>	<b>\$7,512,650</b>	<b>\$5,254,997</b>	

<sup>1</sup> Construction has been defined as the combination of Phase 1 and Phase 2 as per the description in Chapter 5 of the Draft EIS.

<sup>2</sup> Minor and serious casualties have been combined and casualty cost averaged.

<sup>3</sup> It is assumed that the truck fatality rate is equal to the personal vehicle fatality rate.

<b>Issue:</b> Details of the transport plan and the emergency response plan for uranium were requested.
<b>Submission:</b> 66

**Response:**

Information on the transport and emergency response plan are discussed in Chapter 22 (Traffic) of the Supplementary EIS and provided as Appendices K1 and N2, respectively.

### 25.1.2 UPPER SPENCER GULF MARINE SAFETY REVIEW

<b>Issue:</b> An assessment of the marine safety of the landing facility operations was requested. Issues to be addressed in the response included accidents in shipping lanes, interactions between fishing boats and barges, barges stranded on sand banks, oil spills and coastal hazards.
<b>Submissions:</b> 2, 10, 16, 27, 153, 173, 299, 326, 211, 255, 263 and 355

**Response:**

BHP Billiton instigated an independent maritime safety review of Upper Spencer Gulf to address the range of maritime safety-related issues, including an independent risk assessment. The review, conducted in 2010, is provided in Appendix L2 of the Supplementary EIS, with a summary provided below.

In addition to the safety review discussed below, additional information regarding risk assessments was provided in Chapter 26 and Appendix C of the Draft EIS.

The safety review concluded that the safety impact and risk issues could be controlled with appropriate management measures and by adhering to relevant regulations. To ensure this is done, BHP Billiton would develop and implement a maritime management plan for all shipping to and from the landing facility, which would cover emergency response, community liaison, vessel movements, safety and other issues related to shipping.

The safety review also included an independent risk assessment of the main issues identified in the public submissions.

#### Overview of safety review

During the first seven years of construction, the BHP Billiton landing facility near Port Augusta would see around 280 vessel calls, with 100 arrivals in the first two years and 200 arrivals in the following five years. This translates to about one visit per week for the first two years and then one visit each 11 days for the following five years. For comparison purposes, the port of Whyalla manages some 1,000 vessel movements per year, with a significant number of them being recreational craft. A high level of safety is achieved at Whyalla by actively managing the interaction between commercial and recreational vessels.

Recreational boating numbers in Spencer Gulf depend upon the season, holiday periods, the weather and fishing conditions. In South Australia, there are almost 56,000 registered recreational craft, with 1.8% of these registered in the postcodes of Port Augusta and the Far North.

Available data from various state and commonwealth agencies was accessed and a summary of incidents is provided in Table 25.3.

**Table 25.3 Recent incident data from Spencer Gulf**

Year	Region	Incident	Fatal	Serious injury	Minor injury	Vessel lost	Vessel damage	Property damage	No damage	Total incidents
2006	<b>Metro</b>	Collision of vessels	0	0	1	0	0	2	0	3
		Grounding unintentional	0	0	0	0	0	1	0	1
		Hit by vessel or propeller	0	2	0	0	0	0	0	0
	<b>Spencer North</b>	Collision of vessels	1	0	0	0	0	0	0	1
2007	<b>Metro</b>	Collision of vessels	0	0	1	0	0	1	0	1
		Collision with fixed object	0	1	0	0	0	1	0	2
		Grounding unintentional	0	1	0	0	0	1	0	2
		Swamping	0	0	0	0	0	1	0	1
2008	<b>Metro</b>	Collision of vessels	0	0	3	0	3	1	0	7
		Collision with floating object	0	0	1	0	0	0	0	1
		Collision with fixed object	0	0	2	0	0	0	0	2
		Grounding intentional	0	0	1	0	0	0	0	1
		Grounding unintentional	0	0	1	0	0	0	0	1
		Sinking	0	0	1	0	0	0	0	1
		Swamping	0	0	0	0	1	0	0	1
2009	<b>Metro</b>	Collision of vessels	0	0	1	0	3	1	0	5
		Collision with fixed object	0	0	0	0	1	0	0	1
		Grounding unintentional	0	0	0	0	1	0	0	1
		Other on-board injury	0	0	1	0	0	0	0	1
		Swamping	0	0	0	0	1	0	0	1
	<b>Spencer Gulf</b>	Collision of vessels	0	0	1	0	0	0	0	1
2010	<b>Metro</b>	Capsizing	0	0	1	0	0	0	0	1
		Collision with fixed object	0	0	1	0	0	0	0	1
		Grounding unintentional	0	0	0	1	0	0	0	1
		Hit by vessel or propeller	0	0	1	0	0	0	0	1

Source: Department of Transport, Energy and Infrastructure marine incident data

The data show that accidents and incidents are rare.

#### Risk assessment

The safety review included an additional independent risk assessment. The assessment built on the findings of the Draft EIS risk assessment and noted that, with appropriate management and mitigation measures, the majority of the potential risks were 'unlikely' or 'very unlikely', and therefore rated as 'low'.

The highest risk noted was a collision between vessels, which was rated as a 'medium' risk because the consequences of such a collision may be severe. BHP Billiton in its maritime safety management plan would aim to minimise this risk through the following measures:

- communications with small craft
- appropriate pilot guidance for commercial vessels
- establishing an exclusion zone around cargo transfer points
- scheduling commercial shipping movements
- applying speed limits for commercial vessels
- complying with appropriate regulations.

Other risks identified and assessed in the safety review were:

- the risk of swamping small craft from wash or wake is low, however the management measures to control this risk are identical to the collision risk mitigation measures
- the likelihood of groundings is assessed as very low, and recovery in sheltered shallow water with sand or mud bottom almost certain, so the overall risk is assessed as very low
- the likelihood of loss of cargo is assessed as very low, and recovery in sheltered shallow water with sand or mud bottom almost certain, so the overall risk is assessed as very low
- the risk from ship to barge transfer is negligible
- the risk from barge movements to landing facility is negligible
- the risk of fuel and oil spills is considered to be low due to the requirement that commercial vessels comply with the appropriate regulations and to the availability of response teams and equipment
- the risk of other pollution is assessed as very low, as it was considered unlikely that commercial vessels would be carrying enough quantities of chemicals or other pollutants to result in a significant impact. The impact from sewage and garbage release is low.

In general, the safety review concludes that the volume of BHP Billiton-related seagoing traffic is low and, with appropriate management measures and compliance with existing regulations, the impacts and risks would be acceptable. The impact from the additional ocean-going ship movements to and in Upper Spencer Gulf was assessed as negligible, provided that the appropriate management measures were put in place.

The Draft EIS risk assessment considered the construction, operation and decommissioning of the landing facility (note that a full description of the risk assessment process was provided in Chapter 26 of the Draft EIS, with the full risk report provided in Arup 2008). The main risk events noted in that assessment were:

- instability of shipping vessels during transfer
- spills of fuel and oil
- accidents and collisions
- groundings due to failure of tug vessels.

All risks were rated as 'low' or 'medium'.

The Draft EIS risk assessment also considered unauthorised access, and it was noted that the facility would be fenced and BHP Billiton would maintain appropriate levels of security. The risk was therefore categorised as negligible.

It was noted that the highest risk associated with the landing facility was during its construction. It was identified that an occupational health and safety risk existed during construction from potential vessel collisions. As with all identified high occupational safety risks, specific management controls would be implemented to ensure the risk was controlled. However, it was assessed that over the operating life of the facility during routine operations, the risk would be far lower because there would be no ongoing construction activities and the number of vessel visits would be relatively low.

### 25.1.3 COMMUNITY HEALTH IMPACTS

#### Issue:

More information was requested on the impacts of dust deposition on the level of amenity for residents of Roxby Downs, taking into account incremental increases over time.

#### Submission: 85

#### Response:

As presented in Section 19.5.5 of the Draft EIS, research into potential impacts on amenity showed that a range of features might influence the community's perception and sensitivity to dust.

Currently, there are no regulations in Australia that govern amenity levels due to airborne particulate concentrations.

Section 13.3.5 of the Draft EIS predicted that dust deposition across Roxby Downs could increase by up to 10% above current deposition levels. While these levels are low, the change could be perceived negatively by the population, leading to public concern.

Dust deposition is related directly to the amount of dust in the air. The modelling in the Draft EIS showed that airborne dust levels in the communities of Roxby Downs and Hiltaba Village would comply with the appropriate air quality standard except under conservatively assumed adverse atmospheric conditions. BHP Billiton has committed to a range of management measures to meet regulatory dust limits, including operational controls such as changes to the mining routine or relocation of activities further from sensitive receivers through to the cessation of significant dust-generating activities under certain conditions. A real-time dust monitoring network would be installed to monitor background and operation-contributed dust levels. This would provide information to inform timely management measures.

BHP Billiton has also committed to an education program and reporting programs for airborne particulates. Information would be provided to residents of Roxby Downs and Hiltaba Village on particulate emissions through information packs, web-based information systems and regular feedback to the community on environmental performance.

#### Issue:

BHP Billiton has been asked to assess the health risks associated with inhalation of airborne pollutants.

#### Submission: 2

#### Response:

Section 13.3.5 of the Draft EIS presented the outcomes of extensive air quality modelling in relation to potential pollutant levels in the environment at key receptor sites, including Roxby Downs and Hiltaba Village. The Calpuff computer dispersion model used for the assessment has been endorsed by the South Australian Government as an appropriate model to predict concentrations of ground level pollutants for the existing Olympic Dam operation. The model outcomes were compared against the performance criteria for airborne emissions at the source of emission as specified by the South Australian Environment Protection (Air Quality) Policy and at the receiver as required by the ambient air quality goals outlined in the SA EPA Guideline for air quality impact assessment and the National Environment Protection (Ambient Air Quality) Measure. The assessment presented in the Draft EIS also considered the rescinded National Health and Medical Research Council Goals for maximum permissible levels of pollutants in ambient air (refer Section 13.3.2 of the Draft EIS for details). The results showed that predicted concentrations of air and ground-level pollutants would be within South Australian and internationally accepted health guideline levels (refer relevant information contained in Table 13.23 and Figures 13.18a through to 13.18d and 13.20a through to 13.20f of the Draft EIS).

The Health and Safety Chapter of the Draft EIS (specifically Section 22.6.7) noted that predicted sulphur dioxide levels at both Roxby Downs and Hiltaba Village would be less than 25% of the recognised standard, with predicted levels for other contaminants much less. The recognised standards take into account both the short- and long-term health effects of contaminants, and compliance with the standards provides an appropriate level of protection.

**Issue:**

A health risk assessment of major emissions (including heavy metals) beyond the literature review provided in the Draft EIS was requested.

**Submissions:** 2 and 33**Response:**

In the Draft EIS, health impacts of airborne contaminants were assessed by comparing predicted concentrations at key locations (such as Roxby Downs) with recognised standards established through such mechanisms as the National Environment Protection Measures (NEPM) and the Environment Protection Agency (EPA) guidelines (which aim to protect the health of the community). The modelling showed that apart from the maximum 24-hour PM<sub>10</sub> concentration under certain worst-case atmospheric conditions (predicted to occur five to 10 days per year), concentrations in the communities would remain well below the applicable standards.

Where the predicted concentration was below the respective standard, it was concluded that health impacts were controlled. This work was presented in Section 13.4.2 and Table 13.23 of the Draft EIS. BHP Billiton also committed to ensuring that airborne contaminant levels remain within the appropriate health standards.

Based on this, a formal health impact assessment of the effects of airborne contaminants was not necessary. Other reasons include:

- significant impact assessment work was undertaken in the Draft EIS that showed that airborne contaminant levels in Roxby Downs would be low
- predicted concentrations of pollutants in the population centres were estimated to be low, and below internationally recognised standards
- the findings of such a study are very likely to be inconclusive as the health impacts would be based on very low concentrations of airborne contaminants and a small and transient population base
- current general health statistics for Roxby Downs (particularly for respiratory diseases) are better than the South Australian state average (see Chapter 22 of the Supplementary EIS)
- the current standards to which BHP Billiton would conform have been established by government to control health impacts.

As part of the Supplementary EIS, an update of the Draft EIS review (MMSD 2001) was conducted and is summarised in Appendix L3 of the Supplementary EIS. In general, the review of the recent published literature did not identify any new issues that might be relevant to the proposed expansion.

**Issue:**

Further information was requested on the health and safety of the general public during and following the expansion.

**Submission:** 21**Response:**

The impact assessments undertaken for the Draft EIS showed that impacts on health as a result of the expanded operation would be low. This was based on comparing predicted emission levels and contaminant concentration levels in the main community of Roxby Downs with international and relevant air quality standards. These comparisons showed compliance with applicable air quality guidelines and standards could be achieved. Where there was a chance of exceeding the air quality guidelines (as is the case for ambient dust), the Draft EIS clearly identified these situations and outlined management strategies and mitigation measures that would be adopted by BHP Billiton to minimise any impact. The conclusion from this work was that the construction and operation of the proposed expansion is not expected to have adverse health impacts on local communities.

An independent check on the health of residents is available through government health statistics. The information is publicly available at <<http://www.publichealth.gov.au/>> and was summarised in Appendix Q3 of the Draft EIS. This showed that after almost 25 years, the health of residents of Roxby Downs is generally good, being comparable with that of other communities in South Australia.

Issues related to cancer rates for communities close to the current operation are discussed in Sections 26.3.1 and 26.3.2 of the Supplementary EIS.

**Issue:**

It was suggested that the synergistic effects of radiation in conjunction with other health hazards had not been considered in the Draft EIS.

**Submission: 318****Response:**

BHP Billiton bases its approach to radiation safety on the recommendations of the ICRP, and this approach was used in the preparation of the Draft EIS. ICRP (2007: paragraph number 98) states that the potential for synergistic effects between radiation and other harmful agents is recognised, but that there is no firm evidence that such interactions would justify a modification to existing risk estimates from low-dose exposure. The potential exception to this general principle is the relationship between the inhalation of radon decay products and smoking (UNSCEAR 2000). This is being considered by the ICRP at present, and BHP Billiton would comply with the requirements that arise from these deliberations.

#### 25.1.4 SAFETY ASPECTS IN ROXBY DOWNS (INCLUDING WATER QUALITY)

**Issue:**

It was suggested that the water of Upper Spencer Gulf is known to contain heavy metals. On this basis, it was questioned what effect this would have on residents of Roxby Downs who drank the desalinated water from the proposed Point Lowly desalination plant.

**Submission: 84****Response:**

BHP Billiton would monitor the quality of water to ensure that it met appropriate health and usability guidelines, as it does with existing water supplies at Olympic Dam and Roxby Downs. If required, BHP Billiton would provide advice and assurance to the workforce (and members of the public) at Olympic Dam that the water met all appropriate quality standards. The ANZECC water quality standards and the NHMRC drinking water guidelines would be used for this purpose.

**Issue:**

Further information was requested on the maintenance of the additional walkways for pedestrians and bicycles in Roxby Downs.

**Submission: 63****Response:**

The Roxby Downs Municipal Council Administrator (also known as the Roxby Downs Council) is responsible for managing the municipality (including such facilities as walkways and bicycle tracks) in accordance with the provisions of the *Roxby Downs (Indenture Ratification) Act 1982*, and the *Local Government Act 1999*.

The Roxby Downs Council has responsibility for services that are normally the responsibility of local government, such as infrastructure, recreation, youth and community services. In this instance, the Roxby Downs Council would be responsible for the ongoing maintenance of the additional walkways for pedestrians and bicycles in Roxby Downs.

The council is also responsible for providing a range of traditional local government functions, as well as managing electricity, water and sewerage services as commercial operations. The council levies rates on properties based on general valuations, with BHP Billiton and the South Australian Government equally funding shortfalls in its annual budget.

More information on the responsibilities and role of the Roxby Downs Council was provided in Section 19.3.2 of the Draft EIS.

**Issue:**

It was claimed that 'Roxby Downs is known to make people sick'.

**Submissions: 166 and 318****Response:**

There is no evidence from Australian or South Australian government medical information to support this statement. Appendix Q3 of the Draft EIS showed a comparison of health statistics between the Roxby Downs region and other regions in South Australia, and this data confirmed that residents of Roxby Downs maintain generally good health, consistent with health levels in other communities in the state.

Further information is available at <<http://www.publichealth.gov.au/>>.

Section 19.3.6 of the Draft EIS provided factual and anecdotal evidence that living in Roxby Downs is indeed beneficial for children and families.

## 25.2 OCCUPATIONAL HEALTH

### 25.2.1 OPERATIONAL SAFETY

**Issue:**

It was suggested that the Draft EIS did not take into account the recent fatalities that have occurred at Olympic Dam since BHP Billiton took over, and that the 'business as usual' case outlined in the Draft EIS for health and safety would not be sufficient for the expanded operation.

**Submission: 13****Response:**

BHP Billiton believes that any workplace fatality is unacceptable and works vigorously towards preventing any safety-related incident. Section 22.1 of the Draft EIS acknowledged that fatalities have occurred at Olympic Dam but also noted that there has been continuing improvement in efforts to make the workplace fatality-free. In addition, Chapter 22 of the Draft EIS described the existing comprehensive systems for safety at Olympic Dam, which takes into account the complexity of the operation.

BHP Billiton recognises that new systems would need to be introduced for the new components of the expansion, and these were also described in Chapter 22 of the Draft EIS. Components such as the open pit mine and the extensive construction activities, both on-site and off-site, would require additional systems for safety. BHP Billiton is committed to ensuring that the best safety systems are in place.

As a minimum, BHP Billiton's global health, safety and environment standards and regulatory standards would establish the basic safety compliance requirements during construction.

In addition, the proposed expansion would apply leading industry construction safety standards based on other highly successful and fatality-free construction projects undertaken by BHP Billiton and other companies in recent years.

As with the existing operation, there would be an ongoing focus on potential fatalities through the BHP Billiton Fatal Risk Control standards, which would be independently audited. The workforce would also be consulted during construction and operation to identify ways to improve safety performance.

Strategies such as specific design criteria, formal hazard and risk assessments from previous projects, inspections, audits, regulatory control and training would combine with a management-led culture of continuous safety improvement to create a safe work environment.

'Business as usual' in the case of safety for BHP Billiton is about continuous improvement.

**Issue:**

Clarification was sought on the processes for managing hazardous wastes.

**Submission:** 240**Response:**

Section 5.6 of the Draft EIS provided a detailed description of the methods and systems for waste management. In general, the primary aim is to avoid or minimise its generation, and to then maximise recycling of all wastes, with hazardous and radioactive waste disposed of under specific legislative requirements (including in dedicated off-site facilities).

The waste management protocols are also described in the annual Environmental Management and Monitoring Reports (the most recent is BHP Billiton 2008c).

**Issue:**

More detail was requested on how the lessons learnt from the previous solvent extraction fires at Olympic Dam have been incorporated into the design of the new processing plant.

**Submission:** 240**Response:**

The design of the whole plant, including the solvent extraction area, is required to comply with all appropriate codes of practice, standards, regulatory requirements and the BHP Billiton Safety and Environment Design Criteria. The design of the solvent extraction area also has to comply with the BHP Billiton Fatal Risk Control standards and go through detailed risk assessments.

Lessons from investigations into the previous solvent extraction fires have been incorporated into the current facility at Olympic Dam. The current design incorporates extensive additional fire prevention and fire controls compared to previous designs. Other features include:

- minimum separation distances between plants, to minimise the spread of fire
- dedicated, isolated scuttle ponds provided for each organic phase
- additional access corridors for fire services
- roads around all sides of the mixer settlers for fire truck access.

In addition, hazardous and dangerous substances are located in designated areas with appropriate separation, fencing and security, isolation and fire protection, and with access for emergency vehicles and personnel.

More broadly, a formal 'lessons learnt process' was undertaken for the entire processing plant that included a review of the existing plant to identify good design features and opportunities for improvement. The current solvent extraction plant was considered to be 'above average' design, as it had incorporated several safety design features from other solvent extraction plants.

As the design for the new facilities develops, further reviews would be conducted, including a full fire assessment and a fire risk study.

**Issue:**

It was suggested that BHP Billiton conduct a comprehensive audit of occupational health and safety in relation to the *Occupational Health Safety and Welfare Act 1986*.

**Submission: 78****Response:**

BHP Billiton takes its commitment to occupational health and safety (OHS) very seriously and this has been outlined in the recently published BHP Billiton – Our Sustainability Framework, which can be accessed at <<http://www.bhpbilliton.com/bbContentRepository/docs/ourSustainabilityFramework.pdf>>.

An important component of the policy framework is the necessity for operations to carry out audits, particularly against the group standards. The results of these audits are reviewed at senior levels in the organisation, including the Sustainability Committee of the Board of Directors.

At Olympic Dam, internal audits are regularly undertaken of OHS performance and compliance with the group standards. In addition to internal OHS auditing, independent external audits are also undertaken.

BHP Billiton is a self-insurer under the *South Australian Workers Rehabilitation and Compensation Act (1986)* and therefore undergoes an independent external OHS audit every three years. BHP Billiton is able to maintain its self-insurer status only if the results of the audit satisfy WorkCover's requirements.

The most recent audit was conducted in 2008, and the next is due in early 2011.

**Issue:**

It was requested that BHP Billiton publicly report company safety records.

**Submission: 78****Response:**

The safety performance of both BHP Billiton and Olympic Dam are presented in the BHP Billiton annual Sustainability Report. Copies of reports are available and can be downloaded from <<http://www.bhpbilliton.com/bb/sustainableDevelopment.jsp>>.