



APPENDIX A3

Consolidated list of management measures and commitments

A3.1 INTRODUCTION

The expansion project is currently in what is termed for BHP Billiton internal purposes the Selection Phase, and therefore will continue to be refined through the Definition Phase prior to construction and operation.

Table A3.1 provides a consolidated list of the management measures, commitments, monitoring programs and contingency measures provided in the Draft EIS and the Supplementary EIS. These are identified in the table as a management measure/commitment (MM), part of a monitoring program (MP) or a contingency measure within a management plan (CM). It is noted some management measures and commitments have been updated in the Supplementary EIS and therefore take precedence over those presented in the Draft EIS.

Table A3.1: Consolidated list of management measures and commitments

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Land disturbance (ID 1.1)	A Significant Environmental Benefits (SEB) offset strategy would be implemented. This could be achieved by setting aside 126,650 ha of land in the South Australian Arid Lands NRM region or alternative arrangements as agreed with the South Australian Government. (DEIS 15.5.1)	MM
	BHP Billiton would prepare a native vegetation management plan for submission to Government describing how the significant environmental benefit would be achieved. (DEIS 15.5.1; SEIS 6.2.1, 9.2,16.7)	MM
	To offset the proposed clearance of 165 ha and 100 ha in the Northern, and Yorke and Eyre Peninsula NRM regions respectively, BHP Billiton proposes to retain the services of a third- party to facilitate the required set-asides and achievement of the SEB in compliance consultation with the Native Vegetation Act. If no suitable areas were available in these regions, BHP Billiton would make an SEB payment to the Native Vegetation Council (NVC) to offset the vegetation clearance associated with the proposed expansion. (DEIS 15.5.1; Appendix N9; SEIS 9.2, 16.7)	MM/CM
	BHP Billiton would make sufficient financial provision in the annual operational budget to fund management actions required to effect significant environmental benefit for the operational life of the mine. Cost provisioning for ongoing environmental management actions following closure would be detailed in the Rehabilitation and Closure Plan. Any perpetual management obligations would be considered at the time of closure and would include a covenant or a similar mechanism to ensure the ongoing management of the SEB post-closure. (DEIS 23.1, 23.10; SEIS 16.7)	MM
	Project infrastructure will be sited and designs modified to minimise disturbance footprints. One initiative specifically designed to minimise vegetation clearance associated with construction of new project infrastructure is the adoption of a 5 m wide clearance corridor for the transmission line (in addition to 100 square metre tower footprints). Another strategy to minimise clearance of vegetation, minimise edge effects and reduce habitat fragmentation was to locate the water supply pipeline, transmission line, gas supply pipeline and rail line adjacent to existing infrastructure corridors. Also, when choosing the final pipeline alignment, BHP Billiton would not cross lake beds, would avoid creek crossings where possible and where unavoidable would cross at right-angles. Significant native vegetation would be avoided as would homesteads and pastoral infrastructure. (DEIS 15.4.2, 15.5.2, 20.1; SEIS 16.6, 16.7)	MM
	The infrastructure would be located on existing cleared land or on Darwin Port Corporation reclaimed land to avoid impacts on mangrove and other marine communities at the Port of Darwin. (DEIS 16.5.2)	MM
	No further expansion of Olympic Village outside the area assessed and approved under the 1997 EIS would be undertaken for the proposed expansion. (DEIS 5.10.2)	MM
	Arid Recovery would continue to be supported by: <ul style="list-style-type: none"> • maintaining a distance of 500 m between the RSF and Arid Recovery • ongoing financial support • scientific, managerial and professional support by BHP Billiton. (DEIS 15.3.10) The scientific, managerial and professional support would take the form of supporting relevant research including establishing a regional hub for natural resources, environmental management and research. (SEIS 32.2.1)	MM
	Further field surveys would be undertaken before the linear infrastructure easements are finalised, and areas of particular importance to listed flora species would be marked as 'no-go' areas on construction design drawings and fenced off in the field to avoid loss. Similar surveys, refinement of easement alignments and no-go marking would also occur for significant individuals and communities of the River Red Gum. (DEIS 15.5.4; SEIS 16.7)	MM
Management measures aimed at detecting and avoiding potential impacts on threatened flora include: <ul style="list-style-type: none"> • further field surveys of the disturbance footprints of the linear infrastructure once the final alignment has been finalised • before disturbance, 'no-go' area would be identified. (DEIS 15.5.4) 	MM	

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	BHP Billiton would work closely with suitable contractors to establish a seed collection, treatment and storage program to support rehabilitation initiatives at Olympic Dam. (DEIS 23.9.2)	MM
	The existing Flora Monitoring Program would be reviewed to ensure the expanded operations were incorporated. (DEIS Appendix U)	MP
	The final alignment of linear infrastructure would be selected to avoid surface water features of particular significance (e.g. Reedy Springs and Saint Mary Pool on the gas pipeline corridors). (DEIS 11.5.1)	MM
	The gas and water supply pipelines would be buried for the majority of their length to enable current land use in the pipeline corridor to continue. (DEIS 9.6) Small sections of the water supply pipeline, particularly those sections of the line that intersect watercourses such as the inlets to Lake Windabout and Pernatty Lagoon, would remain above ground (about 1.5km in total) supported on pre-cast concrete plinths or culverts. (DEIS 5.7.5)	MM
	Considerable effort would be afforded to collect and safely remove fauna that fall into the open trenches during the construction phase for the water and gas supply pipelines. Management measures to reduce these impacts as described in Section 15.5.11 of the Draft EIS will be further detailed in the Trench Management Plan. The Trench Management Plan will be developed by a fauna expert with appropriate experience in arid/semi-arid environments. (DEIS 15.5.11, SEIS 16.7, 29.3)	MM
	<p>The Pernatty Knob-tailed Gecko has been identified as a species requiring special attention during construction of the water supply pipeline and powerline (between kp 158 and kp 212) and a specific management plan would be developed to minimise impacts on this species. The plan would cover:</p> <ul style="list-style-type: none"> • pre-construction surveys • leaving the trench open for as little time as possible • placing a water-soaked, sawdust-filled hessian bag in the trench every 100 m from kp 158 – 212 to provide shade • qualified personnel monitoring the open trench every morning and releasing trapped geckos. (DEIS 15.5.5) 	MM
	The existing Fauna Monitoring Program would be reviewed to ensure the expanded operations were incorporated. (DEIS Appendix U)	MP
	Continued consultation with landowners directly affected in relation to infrastructure easements, including land access, fencing along access tracks, crossing points for pastoral activities, and strategies for dealing with potential incidents during construction and operation. (DEIS 19.5.6)	MM
	A management plan would be prepared to guide the reuse of topsoil (including sand) and cleared vegetation at sites where revegetation is an appropriate rehabilitation objective. (DEIS 23.9.1)	MM/MP
	Wherever possible, temporary sand and topsoil stockpiles would be placed in disturbance areas to minimise additional vegetation clearance (refer to Figure 5.8 of the Draft EIS for the location of the proposed RSF footprint). (DEIS 23.9.1; SEIS 5.4.5)	MM
	The reuse of topsoil within one to two years would be targeted to maximise the potential for biological stock to remain within the soil. (DEIS 23.9.1; SEIS 5.4.5)	MM
	Drainage culverts would be installed to maintain existing drainage patterns, and it is anticipated that cut-and-fill operations along the access corridor route should be sufficient to ensure a reasonably level surface, negating the need for borrow pits to be established. (DEIS 5.9.4; SEIS 5.7.3)	MM
	<p>Standard engineering practices would control erosion in those areas with low and moderate erosion potential, while areas of high and very high erosion potential would require additional measures and the development of an Erosion and Sediment Control Plan (ESCP). The ESCP would be developed before disturbance works began. (DEIS 10.5.1; SEIS 6.2.1, 10.1)</p> <p>Monitoring of disturbed areas and erosion control structures (if installed) would occur during construction activities, particularly after high rainfall and wind events, and would continue after construction until the disturbed areas are stabilised. (DEIS 10.5.1; SEIS 10.1)</p>	MM/MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Erosion and Sediment Control Plans (ESCP) would include marked-up design drawings that show the location, extent and type of erosion control measures proposed, and monitoring programs to ensure erosion and sediment control measures were inspected and maintained. (DEIS 10.5.1)	MM/MP
	The ESCP for the proposed gas pipeline corridor would specifically address dunefield areas associated with the Strzelecki, Collina and Hope land systems, undulating downs and rolling hills within the Mumpie soil unit, and the bed, banks and overflow channel areas of the main watercourses. (DEIS 10.5.1)	MM/MP
	Suitable erosion protection measures (e.g. silt fences) would be installed on the downstream side of the disturbance areas for the transmission line towers where soils of high erosion risk have been identified and in areas within 50 m of a drainage channel or watercourse. (DEIS 10.5.1)	MM
	Erosion protection measures would be implemented to limit the disturbance to protective gibber surfaces (such as those within the Arcoona land system between Woomera and Roxby Downs) and salt crusts (e.g. at Lake Windabout and Pernatty Lagoon). Where possible, ancillary infrastructure would be located outside these areas. Site clean-up in these areas would also avoid grading or shallow ripping of traffic compacted areas to retain the integrity of the compacted surface. (DEIS 10.5.1)	MM
	Additional erosion control measures and site-specific ESCPs would be implemented at the landing facility and desalination plant sites to ensure that sediment generated from construction activities did not enter the ecologically sensitive marine waters.	MM
	The ESCP for the landing facility and desalination plant would be prepared before disturbance works began (as was shown in Figure 24.4 of the Draft EIS). (DEIS 10.5.1; SEIS 10.1)	
	Erosion protection measures would be implemented to limit sediment transport from the construction area into watercourses and coastal areas (at the Port of Darwin). (DEIS E4.8.3)	MM
	Further investigations would be conducted during the detailed design phase to further quantify the acid-generating potential of these soils at the landing facility. (DEIS 10.5.2; SEIS 10.2)	MM
	An Acid Sulfate Soils (ASS) Management Plan would be prepared before construction in areas where the disturbance of potential acid sulfate soils was confirmed by field investigations. The Plan would detail the required soil handling methods and lime dosing rates. (DEIS10.6; SEIS 10.2)	MM
	For areas below 5 m AHD at the Port of Darwin, Point Lowly, landing facility and the infrastructure corridor (in particular Yorkey's Crossing and Lake Windabout), where ground disturbance is to occur, further investigations would be carried out and an ASS management plan prepared prior to disturbance detailing required soil handling methods and lime dosing rates if the sample was found to exceed the applicable criteria. (DEIS 10.5.2; E4.8.3)	MM
	ASS Management Plans would be prepared six months before construction activities for the water supply pipeline (areas adjacent to Port Bonython Road), landing facility and transmission line began. (DEIS 10.6; SEIS 10.2)	MM
	A procedure for identifying and treating fossils, should they be found during ground disturbance work, would be developed for the project components requiring excavation in the Bulldog Shale areas. (DEIS 10.5.5)	MM
	Any potential indirect impacts would be managed by locating temporary construction camps away from known fossil reserves, and, if deemed desirable by the Department of Sustainability, Environment, Water, Population and Communities (SEWPC), appropriate information about the importance of fossil reserves would be included in the contractor induction programs. (SEIS 10.3)	MM
	Erosion control measures would be adopted around the pit edge to mitigate the risk of pit instability to a depth of 40 m, including installing a bund around the pit edge to prevent infiltration of run-off and installing erosion control banks on the weathered slope. (DEIS 23.8.1; SEIS 28.1.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Post-closure, potentially contaminated soils within the SML would be assessed and remediated as specified in the amended site contamination provisions (2007) of the Environmental Protection Act 1993, the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 1999), and/or other relevant legislation at that time that addresses contamination. (DEIS 23.8.3; SEIS 10.4)	MM
	Each sludge backwash lagoon would be lined with a low-permeability material to prevent leaching. (SEIS 5.5.1)	MM
	The proposed sulphur handling facility will have an impervious floor and corrosion-treated concrete walls. (DEIS 5.9.5; SEIS 5.7.1)	MM
	Stormwater run-off from the metallurgical plant would be directed to retention ponds. (DEIS Appendix N; SEIS 16.7)	MM
	On land, the intake pipe would be aligned in trenches through land that is either currently vacant or alongside the existing road corridor. The pipes would then either be trenched into the seabed or laid on the seabed and covered with rock. A fenced compound would be installed around the intake sump on currently vacant land. (DEIS 5.7.4, 9.7.3)	MM
	In the event that the ultimate pipeline alignment requires blasting to be within 100 m of the Point Lowly Lighthouse, the charge size of blasts in the area would be adjusted to ensure compliance with recommended building damage criteria for sensitive sites, based on Australian and international standards. (DEIS 18.5.1)	MM
	<p>Management measures to further reduce potential impacts on the Point Lowly Lighthouse Complex would include:</p> <ul style="list-style-type: none"> • minimising the construction period and disturbance footprint of the outfall pipe within the heritage complex • providing prior notice of construction works to the South Australian DEH to establish acceptable design and construction criteria for the pipeline and other requirements during the construction phase • undertaking pre- and post-blasting building condition surveys at the Point Lowly Lighthouse, if required • monitoring blast patterns to ensure compliance with the appropriate air blast and vibration criteria • keeping accurate records describing the location of each blast and all blastholes, the design of the blast in terms of explosives and initiating system usage, and ground vibration and airblast measurement data. (DEIS 18.5.1) 	MM
	A Heritage Management Protocol has been developed as part of the proposed expansion for managing heritage sites of Aboriginal Heritage value. (DEIS 17.5.2)	MP
	Once all components of the expansion project are completed, BHP Billiton would make annual payments into the trust established by the Olympic Dam Agreement over the remaining life of the mine to support community development initiatives for Aboriginal people and communities in the northern region. (DEIS 17.5.2; SEIS 18.2)	MM
	The Olympic Dam Agreement includes arrangements for regular consultation between BHP Billiton and the groups about environmental matters. These arrangements would continue for the remaining life of the mine, including its expansion, and would also deal with rehabilitation issues. (SEIS 18.1). Representatives of the native title claimant groups would be trained and employed in heritage management and recording activities. (SEIS 18.2)	MM/MP
	A program of ongoing archaeological investigations has been agreed to by the Kokatha, Barngarla and Kuyani groups. The program includes the participation of Aboriginal archaeological field trainees nominated by the groups to accompany qualified archaeologists. The areas to be surveyed include parts of the SML not previously surveyed and the preferred locations for the various infrastructure elements, once these are determined. (DEIS 17.5.3; SEIS 18.2)	MP
	Separate consultation with the Nukunu, Arabunna, Dieri and Adnyamathanha groups has continued as required and BHP Billiton would consult with Aboriginal groups claiming an interest in any area where land disturbance would occur during the expansion. (DEIS 17.2.2)	MM
	In situations where disturbance is unavoidable, the Olympic Dam Agreement requires BHP Billiton to discuss the matter with Aboriginal custodians prior to making an application to the South Australian Government for permission to disturb sites. (DEIS 17.5.4; SEIS 18.3, 18.4)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Where it has not already done so, BHP Billiton would conduct ethnographic surveys over areas where proposed infrastructure for the expanded project may be located. (DEIS 17.5.3)	MM
	If it is necessary to disturb archaeological or ethnographic sites (with relevant approvals), a site disturbance mitigation plan would be developed in consultation with the appropriate Aboriginal groups. (DEIS 17.3.3)	MM/MP
	Codes of Practice and education during the Olympic Dam workforce induction training would be implemented to help ensure an awareness of the existence of the listed heritage sites and the need to comply with laws relating to their protection. (DEIS Appendix U; SEIS 18.4)	MM
	The EIHCPC procedure would be reviewed to include expansion areas, such as infrastructure corridors from Moomba to Pt Lowly, and the Port of Darwin. (DEIS 10.5.1).	MM
	If new or potential non-Aboriginal heritage sites were identified during the project definition or construction phases, the sites would be managed according to the Heritage Places Act 1993 (SA). (DEIS 18.5.4)	MM
	In the event that a site or relic of non-Aboriginal heritage value was found during construction or operation of the proposed facility at East Arm in the Northern Territory, the relic would be managed in accordance with the Heritage Conservation Act. (DEIS 18.5.4)	MM
	The existing Rehabilitation and Closure Plan for the current Olympic Dam operation would be updated to include the expanded mine components of the proposed expansion (should it be approved) after the detailed design phase of the project has been completed. (DEIS 23.8; SEIS 28.1.1)	MM
	If no further use was identified for built structures associated with the quarantine laydown facility, these would be removed and recycled. The access corridor would be ripped and revegetated, preventing further use by motor vehicle traffic. (DEIS 23.8.12; SEIS 28.2.1)	MM
	Growth of indigenous plants (that are generally salt-tolerant) would be encouraged around the base of the RSF. (DEIS 23.8.2; SEIS 28.2.2)	MM
	All haul and access roads would be re-contoured and ripped to encourage natural revegetation. These tracks would also be actively replanted with local salt-tolerant plants following closure. (DEIS 23.8.1, 23.8.2; SEIS 28.2.2)	MM
	The land use options listed in Sections 23.8.1 to 23.8.13 of the Draft EIS would be included in the Rehabilitation and Closure Plan for the expanded operation and developed further in consultation with government departments and other stakeholders over the life of the operation. (DEIS 23.4.2, 23.5, 23.8; SEIS 9.1, 28.1.2, 28.2.2)	MM
	<p>The following outlines the monitoring and research area that would occur during the operation phase of the expanded mine and provide additional information to help refine the rehabilitation and closure plan:</p> <ul style="list-style-type: none"> • pit water quality and quantity (DEIS 23.12.1, 23.8.1) • RSF and TSF rehabilitation trials (DEIS 23.12.2) • characterisation of the mine rock (DEIS 23.9.1) • optimising revegetation and rehabilitation (DEIS 23.12.3) • metal uptake by vegetation (DEIS 23.12.4) • rehabilitation success. (DEIS 23.12.5) 	MP
	The overarching rehabilitation and closure objectives included in Section 23.4 of the Draft EIS would inform the development of specific rehabilitation and closure criteria for each element of the proposed expanded operation. Performance measures would be developed in parallel to closure criteria so that the success of design features, management actions and control measures intended to achieve the rehabilitation and closure objectives could be assessed. (DEIS 23.4; SEIS 28.1.2)	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Marine disturbance (ID 1.2)	BHP Billiton has committed to tunnelling the outfall pipe. (SEIS 1.4)	MM
	The intake pipe would continue to be installed by a 'trench and fill' construction method, with the requirement for, and extent of, blasting for the intake pipe to be further investigated prior to detailed design. (SEIS 21.4.2)	MM
	The design of the intake would ensure the intake water stream is horizontal (which fish are able to sense) and has a slow intake speed, both of which facilitate fish and larvae avoiding entrainment. (SEIS 17.13.5)	MM
	Entrained organisms would be monitored during the first 12 months of the desalination plant's operations by sampling the intake stream. (SEIS 17.3.1)	MM/MP
	A blasting management plan would be prepared for the installation of desalination plant intake pipe (if required) to minimise the concussive effects of blasting and the potential for sediment mobilisation. (DEIS 16.6.11)	MM/MP
	Installing the intake pipe through rocky reef areas may require the use of underwater blasting to fracture the rock prior to excavation, The explosive charges would be placed in holes drilled into the seabed, which would dampen the concussive effect of the blasting, The concussive effects would be further mitigated by using numerous small charge rather than fewer, large charges. Marine blasting would not occur during the cuttlefish breeding season, or if whales or dolphins were observed in the area. Prior to each blast, a 600 m exclusion zone would be established and monitored to minimise the risk of marine mammals or listed marine species entering the blast zone. (DEIS 16.6.11)	MM
	Monitoring of benthic communities would be undertaken as a component of the additional baseline surveys to be conducted before construction activities began. (DEIS 16.6.5, 16.6.9; SEIS 17.1.1, 17.11.4)	MP
	If the return water discharge did not meet agreed regulatory thresholds for return water dispersion or monitoring identified unacceptable impacts, BHP Billiton would adopt appropriate management response, which may include ceasing to discharge, until the issue was resolved (SEIS 17.10.9)	CM
	In order to minimise potential impacts on breeding cuttlefish during construction of the intake pipe, marine blasting (if required) would be confined to the period from 1 November to 1 May (i.e. outside the breeding period). (DEIS 16.5.2, 16.6.11, SEIS 21.4.2, 32.2.2)	MM
	When selecting outfall pipe location, consideration would be given to minimising impacts on a sponge community. (DEIS 16.6.6)	MM
	The terrestrial components of the outfall pipe would be buried completely, limiting potential impacts on the visual appeal of the lighthouse to the construction phase only. (DEIS 18.5.1)	MM
	BHP Billiton would undertake additional marine baseline surveys that would provide detailed quantitative data against which potential impacts would be monitored. These surveys would be completed before construction began. (DEIS 16.6.5; SEIS 17.1.2)	MP
	<p>Before the desalination plant commenced operation, a monitoring program incorporating the following would be established:</p> <ul style="list-style-type: none"> • seasonal surveys describing the composition of benthic communities at permanent underwater monitoring sites • a seawater program to provide comprehensive water quality data (including salinity and dissolved oxygen) for Point Lowly. Salinity/temperature meters and data logger would be used to monitor salinity at critical sites • a sediment sampling program at Point Lowly to provide comprehensive sediment quality information, including organic and inorganic pollutants and sediment oxygen demand. (DEIS 16.6.5, 16.6.9) 	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton has committed to more extensive sediment monitoring in the Draft Environmental Management Program. The program includes sediment sampling at Point Lowly to provide further information on sediment quality, including organic and inorganic pollutants and sediment oxygen demand.</p> <p>Marine monitoring would occur for two years before construction began, during construction, and during operations. (DEIS 16.6.9; SEIS 17.2.2, 17.11.4)</p>	MP
	<p>BHP Billiton would prepare a silt and sediment management plan to minimise turbidity and silt deposition arising from the installation of intake and outfall pipes for the desalination plant. (DEIS 16.6.11)</p>	MM/MP
	<p>BHP Billiton has committed to future monitoring to confirm that model predictions are consistent with measured data both before and during the operation of the desalination plant.</p> <p>Water quality at Point Lowly would be monitored using salinity/temperature data loggers or potentially other means for at least two years prior to construction, and during construction and operation of the plant (DEIS 16.6.5; SEIS 17.2.1).</p> <p>During operation of the plant, salinity would be monitored continuously at a number of strategic locations, including in the Australian Giant Cuttlefish breeding habitat. Current speeds would also be monitored off Point Lowly (e.g. using an ADCP) for sufficient time to enable the model predictions to be validated before and during operation of the plant. The data would be retrieved in real-time (using live telemetry) enabling appropriate management responses to be initiated should dilution targets be exceeded. (DEIS 16.6.5; SEIS 17.5.3, 17.11.4)</p>	MP
	<p>During the first year of operation of the desalination plant, salinity and dissolved oxygen would be monitored intensively within 1–2 km of the outfall, under a variety of tide and wind conditions, to validate the hydrodynamic model predictions of dispersion and dilution of the return water, and to determine if stratification and subsequent low dissolved oxygen occurs on the seafloor. Rhodamine WT dye would be added to the return water on several occasions (including during dodge tide and no wind conditions) to provide a direct measure of return water dilution and dispersion within several kilometres of the outfall. If the model predictions were confirmed, the monitoring program would be reviewed and revised appropriately. (DEIS 16.6.5, 16.6.9)</p>	MM/MP
	<p>BHP Billiton has committed to continue financing surveys of Australian Giant Cuttlefish abundance and biomass, which will continue to improve the understanding of natural population variability.</p> <p>BHP Billiton has committed to undertaking an annual survey of the Australian Giant Cuttlefish population at Point Lowly to establish a suitable baseline for the cuttlefish population before construction and operation of the desalination plant. (SEIS 17.10.3)</p> <p>The results would be publicly reported. (SEIS 32.2.2)</p>	MP
	<p>A monitoring program would be established to:</p> <ul style="list-style-type: none"> • monitor Australian Giant Cuttlefish populations at Point Lowly before and after the desalination plant began to operate • monitor salinity within the Point Lowly cuttlefish habitat before and after the desalination plant began to operate. (DEIS 16.6.7) 	MP
	<p>A monitoring program would be developed for flora and fauna monitoring for marine activities associated with the desalination plant. The program would be developed to monitor the effectiveness of controls, management and mitigation measures put in place to meet the objectives set for marine disturbance. (DEIS Appendix U)</p>	MP
	<p>BHP Billiton is committed to providing support and input into regional environmental management and monitoring with regulators and other users and occupiers of the Upper Spencer Gulf. (SEIS 29.1.9)</p>	MM/MP
	<p>BHP Billiton would support all appropriate measures to ensure the long-term conservation of the cuttlefish breeding aggregation at Point Lowly. (SEIS 17.10.3)</p>	MM
	<p>Areas of disturbed Australian Giant Cuttlefish breeding habitat would be reinstated once the intake and outfall pipes had been installed. (DEIS 16.6.11)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Consideration would also be given to creating additional breeding habitat for cuttlefish adjacent to existing habitat with excess rock from the pipe trench, in consultation with relevant stakeholders. (DEIS 16.6.11)	CM
	Disturbed sections of reef would be reinstated with rock when construction was completed. (DEIS 16.6.11; SEIS 17.14.5)	MM
	If the remnants of relics of historic shipwrecks were located, the SA DEH would be contacted and remnants managed according to the Historic Shipwrecks Act 1981. (DEIS 18.5.4)	MM
	<p>The emergency response procedures for spills in the marine environment will adhere to requirements specified in Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (AMSA 2007) and any relevant requirements stipulated by the National Plan State Committee. Environmental monitoring of flora and fauna and water quality would be undertaken as outlined in the Marine Flora and Fauna Monitoring Program and the Marine Water Quality Monitoring Program, respectively. These documents will be finalised and provided to government for review well before construction activities and operation begin at the landing facility.</p> <p>Annual public reporting of the environmental performance of Olympic Dam operations, including the new infrastructure proposed for Upper Spencer Gulf, would continue using the operation's annual environmental report. (SEIS 29.1.1)</p>	MM
	The landing facility would be constructed as a piered jetty rather than a causeway to minimise impacts on coastal processes and seagrass communities. (DEIS 16.5.2, 16.6.12)	MM
	BHP Billiton has undertaken testwork at the site of the proposed landing facility and the results indicate that there would be no need for any dredging in the Upper Spencer Gulf. (DEIS 16.6.13)	MM
	Existing berths would be used (for importing and exporting of materials) at Outer Harbor, and no dredging would be required. (DEIS 16.6.13)	MM
	If the South Australian Government decided during the course of the planning process that the continued use of the pier for other enterprises or as a public facility was not suitable, BHP Billiton would decommission the landing facility and rehabilitate the site at the completion of its operation or shortly thereafter. (DEIS 23.8.12; SEIS 28.2.1)	MM
Spread of pest plants and animals (ID 1.3)	<p>Management measures proposed to mitigate the spread of weeds and vertebrate animal pests include:</p> <ul style="list-style-type: none"> • liaising with relevant NRM Boards to develop targeted weed management strategies including coordinated efforts to control high-priority species • continuing the existing feral animal monitoring and control programs in the Olympic Dam region • collaborating with Roxby Downs Council to better manage cats and dogs in the township • ensuring the diligent cleaning of plant, equipment and vehicles before construction work commences and after leaving areas infested by declared weeds • identifying areas where weed hygiene measures would be implemented by undertaking searches for declared weeds during the field surveys for the final infrastructure locations • minimising the disturbance caused by construction and operational activities wherever possible • ensuring that vehicles remain on designated tracks to minimise disturbance and weed spread • conducting follow-up surveys 12 months after construction and/or after significant rains to determine the need for weed control • undertaking control activities for declared and environmental species where they occur on lands owned by BHP Billiton. <p>The weed management strategy between BHP Billiton, Arid Recovery, the Roxby Downs Municipal Council and the Andamooka Progress and Opal Miners Association would be updated to include new components of the project prior to commencing construction for the proposed expansion. (DEIS 15.5.11; SEIS 16.3)</p>	MM
	Following project approval, the flora monitoring plan would be extended to include areas of new infrastructure. The distribution of extreme and high risk weed species would be mapped as part of this program and the information would be used to determine the need for amendments to the weed management plan, control activities or management measures. The results of monitoring and management activities implemented would be publicly reported in the Annual Environmental Management and Monitoring Report. (DEIS 15.5.9, 24.4.6; SEIS 16.2, 16.3)	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton has proposed a suite of management actions described in Chapter 15 of the Draft EIS that are designed to further contribute to the achievement of net gain for biodiversity over time. These include:</p> <ul style="list-style-type: none"> • implementing feral animal monitoring and control programs in the Olympic Dam region • collaborating with Roxby Downs Council to reduce the impact of increased human activity on native flora and fauna in the region • developing targeted weed management strategies, including control of declared and environmental species in consultation with relevant Natural Resources Management Boards. (DEIS 15.6, SEIS 16.7, 29.4) 	MM
	<p>A landfill management plan would be developed for the new facilities to be built as part of the expansion and would incorporate strategies and controls for pest plants/ animals. (DEIS Appendix U)</p>	MM/MP
	<p>BHP Billiton would consider supporting Roxby Downs Council to:</p> <ul style="list-style-type: none"> • fence landfill sites to minimise access by feral animals including cats and foxes • improve the management of landfill sites to ensure that non-recycled organic rubbish is buried as quickly as possible. (DEIS 15.5.11) 	MM
	<p>BHP Billiton would monitor gull populations at Olympic Dam and communicate the results to DEH to assist its programs, (DEIS 15.5.11)</p>	MM/MP
	<p>BHP Billiton would support DEH efforts in prevention of gull predation on banded stilt eggs. (DEIS 15.5.7)</p>	MM
	<p>The existing Fauna Monitoring Program would be reviewed to incorporate the expanded operations. (DEIS Appendix U)</p>	MP
	<p>Kangaroo management and monitoring would continue under the updated EM Program. Results of fauna management and monitoring activities would continue to be publicly reported in the Annual Environmental Management and Monitoring Report. (DEIS 24.4.6; SEIS 16.3)</p>	MP
	<p>A Mosquito Management Plan would be developed prior to construction by appropriately qualified personnel, in accordance with the Guidelines to Prevent Mosquito Breeding. Issues to be considered would be pond depth, angle of bund sides, material used in bunds, control of aquatic and semi-aquatic vegetation, and the discharge sites for overflow water. (DEIS Appendix U)</p>	MM/MP
	<p>Any receptacles or depressions with the potential to store water for more than three days would be avoided, and stormwater drains would be kept clear of vegetation and be free-draining to avoid formation of mosquito breeding habitat. (DEIS Appendix E4.8.5)</p>	MM
	<p>BHP Billiton would develop and implement a Ballast Water Management Plan for the management of barge and ship ballast water for the protection of marine environmental values. (DEIS Appendix U)</p>	MM/MP
	<p>Consultation with personnel with ecological expertise during the design and construction of the port facilities, including the Medical Entomology Branch of the NT Department of Health and Families. (DEIS Appendix E4.8.5)</p>	MM
	<p>BHP Billiton will prepare and implement a management plan for shipping operations in Upper Spencer Gulf, describing all mandatory requirements and protocols for managing ballast water and minimising the risk of introducing marine pests and diseases to Upper Spencer Gulf. (SEIS 17.17.1)</p> <p>BHP Billiton would ensure that ballast water management is consistent with international, Australian and local requirements, with no discharge into Australian waters. (DEIS Appendix E4; SEIS 17.16.1, 17.17.2)</p>	MM
	<p>Consistent with the National System for the Prevention and Management of Marine Pest Incursions, a marine monitoring program would be implemented for the construction areas before and during construction and operation of the facilities. This would include surveys of the artificial substrates for introduced marine pests. (SEIS 17.17.2)</p>	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Should invasive species be detected during post-construction monitoring surveys, control measures would be implemented in consultation with PIRSA should they be required. (SEIS 17.17.2)	CM
	In addition, all cargo carrying vessels (including vessels and barges) used by BHP Billiton would be operated 'under class', requiring them to have suitable vessel hull management strategies. (SEIS 17.17.2)	MM
	Discharge of ballast water (at the Port of Darwin) would be managed in accordance with the requirements of Darwin Port Corporation and national ballast water management standards (currently being developed). (DEIS Appendix E4.8.4)	MM
	The existing Rehabilitation and Closure Plan for the current Olympic Dam operation would be updated to include the expanded mine components of the proposed expansion (should it be approved) after the detailed design phase of the project has been completed. (DEIS 23.8; SEIS 28.1.1)	MM
	BHP Billiton will liaise with AQIS on the additional assessment requirements that would apply to approvals for premises in fringe and rural areas, such as Upper Spencer Gulf. (SEIS 29.1.3)	MM
	A Biosecurity Management Plan will be developed for international vessels that import or export goods (including machinery) to or from the landing facility. (SEIS 29.1.3)	MM
Aquifer level drawdown (ID 1.4)	BHP Billiton is not proposing to obtain any more water from the GAB than that which is currently available under approvals from the Australian and South Australian governments. (DEIS 12.1; SEIS 12.5.8, 18.1)	MM
	A supplementary low quality water supply, primarily for dust suppression, would be sourced from saline aquifers close to the current operation. (DEIS 12.1)	MM
	No water would be extracted from GAB springs or groundwater wells within 20 km of the springs during gas pipeline construction. (DEIS 15.5.3)	MM
	During the operation phase of the mine, the quality of water entering the pit would be monitored regularly so the results of the pit limnological modelling could be validated and/or further refined. (SEIS 11.4.2)	MP
	The existing contingency plan for addressing unexpected drawdown or spring flow decline near the Olympic Dam wellfields would be followed for water taken within the existing licence approval. (DEIS 12.1; SEIS 12.5.8)	CM
	Existing water management plan would be revised for the operation. (DEIS Appendix U)	MM/MP
	<p>The existing operation has a groundwater monitoring program would be reviewed to incorporate expansion requirements for regulatory review and approval prior to implementation. The groundwater monitoring program would include provision for:</p> <ul style="list-style-type: none"> • monitoring the groundwater levels in wells in the Olympic Dam region to confirm and validate the groundwater model predicted levels • ongoing monitoring of groundwater levels and spring flow at Yarra Wurta springs • establishing a program using piezometer monitoring bores to review the depressurisation system. (DEIS 5.4.3, 12.6.3 Appendix U; SEIS 12.5.3, 12.5.6, 12.5.8) <p>The monitoring program would be reported through the annual Environmental Monitoring and Management Report. (DEIS 12.6.3, 12.6.4, 26.3; SEIS 11.4.3, 12.1.4, 12.5.6)</p>	MP
	<p>The specific observation wells to facilitate monitoring of groundwater drawdown within Motherwell wellfield and the surrounding area would be selected once a groundwater monitoring plan has been developed. The monitoring plan would be developed to support a groundwater licence. (SEIS 12.5.6)</p> <p>BHP Billiton will provide the South Australian Government with a monitoring program, including contingency measures, for the proposed abstraction of groundwater from the Motherwell wellfield. (SEIS 12.5.3)</p>	MP/CM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	The Great Artesian Basin Monitoring Program would be reviewed to ensure expansion requirements were incorporated. (DEIS Appendix U)	MM/MP
	The new open pit would require dewatering and depressurisation to control potential inflows of groundwater to the pit and to reduce residual pore pressures behind the pit walls. (DEIS 5.4.3, 12.4.2)	MM
	Management options for potential excess water from open pit depressurisation during construction would be investigated during the design phase of the project and implemented into the environmental management program. Contingency options could include consideration of reduction in demand from saline wellfield abstraction or managed aquifer recharge. (DEIS 12.4.2; SEIS 12.5.4)	MM/CM
	Groundwater levels would be monitored during mine operation to check that groundwater drawdown has no unexpected effect on the local environment. (DEIS Appendix U; SEIS 12.5.5) If monitoring showed that drawdown was having an unexpected effect on local flora contingency options would be considered. (SEIS 12.5.5)	MP/CM
	The existing Fauna Monitoring Program would be reviewed to ensure groundwater communities/ecology (such as the Yarra Wurta springs) relevant to monitoring the expanded operation would be incorporated. (DEIS Appendix U; SEIS 12.5.6)	MP
	Groundwater quantity and quality within a selection of operating wells in the Olympic Dam region would be monitored throughout the operation phase. As new information on the surrounding environment becomes available (e.g. monitoring results and any further changes to the estimates of the Arckaringa Basin groundwater discharge rate) it would be incorporated into the groundwater model to confirm the model's accuracy and the model would be refined and recalibrated as required. (SEIS 12.5.7) BHP Billiton will continue to study any potential interaction between the GAB and the Stuart Shelf, including monitoring of the Torrens Hinge Zone and northern Stuart Shelf. (SEIS 12.5.8)	MP
	If monitoring results established that drawdown was likely to affect current third-party users in the future, alternative water supply options would be investigated. These may include relocating or deepening existing groundwater wells, or providing an alternative water supply. Options would be considered in consultation with the third-party user. (EIS 12.6.3; SEIS 12.5.7)	CM
Chemical/hydrocarbon spillage (ID 2.1)	Transport, handling and storage of fuel and other hazardous materials within the SML (Special Mine Lease) would be in accordance with the relevant state and Australian statutory requirements. As a minimum, the South Australian Environment Protection Authority standards would be used (EPA Guideline 080/07). Current spill management and reporting procedures would continue to be implemented and updated as required for the expanded operation. (DEIS 10.6, 11.5.2, 12.6.2, 22.6.8; SEIS 10.4, 11.1.2, 11.4.3)	MM
	Fuel storages and other hazardous materials would be appropriately banded in accordance with Northern Territory and Australian statutes. (DEIS E4.8.3)	MM
	For identified sensitive areas (the western edge of Lake Windabout, Upper Spencer Gulf, and Darwin Harbour), specific spill management procedures would be expanded and developed. The procedures would ensure that spills were controlled at source, contained on-site and cleaned up according to the requirements of the MSDS. Spill containment and clean-up equipment would be available on-site at all times and personnel would be trained in the appropriate use of this equipment. (DEIS 11.5.2)	MM/MP
	As part of contingency management, all parts of the expanded operation would undergo hazard and operability (HAZOP) reviews to identify the potential for spills and the likelihood of spillages. (SEIS 11.1.2, 11.4.3)	MM/CM
	BHP Billiton would develop and implement a 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. (SEIS 25.1.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	It is anticipated that no fuelling/refuelling or transfer of ships waste (i.e. kitchen waste, general waste, oils and the like) would occur at the landing facility. (SEIS 29.1.1)	MM
	It is expected that temporary and/or mobile re-fuelling and waste management and transfer facilities would be located at the landing facility site during its construction. BHP Billiton would require the Construction EMPs to include management strategies, controls and monitoring for the re-fuelling and waste management and transfer facilities (whether temporarily fixed or mobile). (SEIS 29.1.1)	MM
	In the event of a spillage, a number of controls are available for operational personnel to contain the spill, including temporary bunds and spill kits, which operational and emergency response personnel are trained to use. (DEIS 10.6; SEIS 11.4.3)	MM
	At the Port of Darwin all chemicals would be managed through a central store area, material safety data sheets provided, and appropriate training given to personnel in the safe use and handling of chemicals or hazardous materials. (DEIS Appendix E4.10.1)	MM
	Security operations, crisis management, fire control and other existing operational risk management plans would be reviewed to ensure requirements for the expansion were incorporated. (DEIS Appendix U)	MM
	The existing Management Plans – ‘Management of Hazardous Materials’ and ‘Emergency Response Plan’ – would be updated to include the expansion activities, including specific spill management procedures for sensitive areas such as Upper Spencer Gulf. (SEIS 17.8.4)	MM
Radioactive process material spillage (ID 2.2)	Transport, handling and storage of fuel and other hazardous materials within the SML would be in accordance with the relevant state and Australian statutory requirements. As a minimum, the South Australian Environment Protection Authority standards would be used (EPA Guideline 080/07). Current spill management and reporting procedures would continue to be implemented and updated as required for the expanded operation. (DEIS 10.6, 11.5.2, 12.6.2, 22.6.8; SEIS 10.4, 11.1.2, 11.4.3)	MM
	The Emergency Response Plan would be updated to ensure any additional requirements of the expansion were incorporated, particularly for accidental spills. (DEIS Appendix U)	MM/MP
	The existing procedure for the management of hazardous materials would be reviewed to ensure the expansion requirements were incorporated. (DEIS Appendix U)	MM/MP
	Security operations, crisis management, fire control and other existing operational risk management plans would incorporate requirements for the expansion. (DEIS Appendix U)	MM/MP
	There are specific requirements under the Mining Code and these are currently incorporated within the EMS. These requirements are being reviewed and updated to incorporate any additional requirements of the expansion. It is intended that the current RWMP (Radioactive Waste Management Plan) would be updated to encompass the expanded activities. (DEIS Appendix U)	MM/MP
	As required under the Mining Code, a Radiation Management Plan would be developed. The Plan would be closely related to the RWMP but concentrate on occupational exposure control. (DEIS Appendix U)	MM/MP
	The existing Waste Monitoring Program would be expanded and updated to ensure the requirements for the expanded operations were incorporated. (DEIS Appendix U)	MM/MP
	As part of contingency management, all parts of the expanded operation would undergo hazard and operability (HAZOP) reviews to identify the potential for spills and the likelihood of spillages. (SEIS 11.1.2, 11.4.3)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	The tailings pipelines lie within a bunded corridor for the entire length. Traverse bunds would be constructed at intervals to ensure that any spillages were contained within a discrete section of the pipeline corridor. (DEIS 22.6.3)	MM
	BHP Billiton would operate the facility at the Port of Darwin in a similar manner to the existing operation at Olympic Dam, with strict controls for radiation exposure. (SEIS 26.1.1)	MM
Transport of radioactive material (ID 2.3)	In the event of an accidental spill, any exposed copper concentrate would be contained (e.g. covered with tarpaulins) and the area would be secured to prevent unnecessary exposure.	MM/CM
	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. (DEIS 22.6.10; SEIS 25.1.1)	
	Dedicated vessels would be used to ship copper concentrate between the Port of Darwin and 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 issues. (SEIS 25.1.1)	MM
	Planning will be undertaken before rail movements of Olympic Dam copper concentrate commenced and BHP Billiton would work with the NT Government and relevant agencies to develop the emergency response systems. These systems would ensure suitable emergency response plans were in place and a coordinated response would eventuate should a rail incident occur. (SEIS 20.1)	MM
	The Olympic Dam Emergency Incident Management Plan would be amended to include the transport of the copper concentrate containing uranium. (SEIS 20.1)	CM
	The Transport Plan for uranium oxide from Olympic Dam to Australian shipping ports would be updated to include any additional requirements from the expanded operation, The plan describes the procedures and processes for safely storing and transporting uranium oxide, from packaging and delivery, including the emergency response to potential incidents along the routes, It also describes the roles and responsibilities of the various organisations involved. The plan is externally audited. (DEIS Appendix U)	MM/MP
	A Transport Plan for Concentrate is being developed in consultation with the appropriate authorities for the transport of concentrate. The plan outlines key information for shippers, including material hazardousness, stowage information, transport precautions, environmental considerations and emergency procedures. (DEIS Appendix U)	MM/MP
	AS required under the Mining Code, a Radiation Management Plan would be developed. The Plan would be closely related to the Radioactive Waste Management Plan but concentrates on occupational exposure control. (DEIS Appendix U)	MM/MP
	<p>The design of the 'closed system' for the transport and handling of Olympic Dam copper concentrate includes:</p> <ul style="list-style-type: none"> • enclosed rail wagons with sealed lids during rail transport between Olympic Dam and the Port of Darwin at the Port of Darwin • rail wagons would be unloaded using a rotary tippler in an enclosed station. This would include wash-down of wagons before the return trips to Olympic Dam • material would be stored in a dedicated negative pressure facility capable of holding 90,000 tonnes • the product would be transferred via a fully enclosed conveyor and ship loader. <p>Management practices would also be developed and introduced to minimise oxidisation. These measures may include:</p> <ul style="list-style-type: none"> • employing a ridged stockpile turnover procedure of 'last in/first out' so the oldest concentrate in storage would be the first loaded for export shipment • measures to prevent the transfer of material outside contained areas • continual clean-up of storage area floors, roads and access ways to prevent concentrate from being spread thinly; this material would dry out quickly and turn dusty • turning stockpiles and rehydrating Olympic Dam Copper concentrate caught in the storage shed for extended periods (i.e. >two months) due to delays in vessel arrivals. (DEIS 5.9.5, 22.6.10, Appendix E4; SEIS 20.1, 26.1.1) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Compliance with appropriate transport requirements as detailed in the Australian Code of Practice for the Safe Transport of Radioactive Material (2008) would be required. (DEIS 22.6.10)	MM
	The external surfaces of each rail wagon would be washed immediately after the unloading process had been completed at the Port of Darwin. The wash-down water would be collected, filtered and treated for reuse, with some of this water regularly railed back to Olympic Dam. (DEIS Appendix E; SEIS 20.1)	MM
	All conveyor transfer points at Olympic Dam and East Arm would contain fully enclosed spoon chutes, with dust curtains at entry and exit points, Dust suppression mist sprays would be located within the skirts after the loading point and could cover the full width of the conveyed material. (DEIS 5.9.5, 13.3.4)	MM
	BHP Billiton would collaborate with the Darwin Port Corporation and relevant regulatory authorities and agencies to develop and implement a site specific security management plan. (DEIS 5.9.5, Appendix E4.2.3)	MM
	Potential doses to members of the public from the transport of radioactive material would be assessed as necessary and addressed in an updated Radiation Dose to Members of the Public Monitoring Program. (DEIS Appendix U)	
	The rail wagons used to transport the concentrate would be of fabricated steel with a suitable lining and/or coating to maximise corrosion protection. The wagons would also have large-radius internal corners to minimise the build-up of concentrate product, and would be fitted with purpose-built secure lids that would be removed during loading/unloading operations. The design, construction and operation of the wagons would comply with the relevant Rail Industry Safety and Standards Board (RISSB) industry standards, rules and codes of practice for rolling stock that operates on the Australian rail network. (SEIS 20.1)	MM
	Uranium oxide would continue to be sealed in 200 L drums and placed in sealed shipping containers for transport to the nominated export port. (DEIS 5.9.5, Appendix E4.2.2)	MM
	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. (DEIS 13.3.5; SEIS 25.1.3)	MM
	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. (DEIS 13.3.5; SEIS 25.1.3)	MP
	The proposed Operational Dust Management Plan and associated monitoring plan would aim to collect sufficient data to enable a better understanding of the factors that influence background dust concentrations, and to allow some prediction of conditions that are conducive to elevated dust concentrations at Roxby Downs and Hiltaba Village. (DEIS 13.3.5; SEIS 14.1.1)	MP
	The Draft EIS acknowledged that the impact of air emissions on vegetation in these areas might reduce the habitat value of ecosystems for some animals. These impacts would be compensated by setting aside 126,650 ha of land in the South Australian Arid Lands Natural Resource Management region as part of the significant environmental benefit (SEB) offset strategy. (DEIS 15.6; SEIS 16.2)	MM
	BHP Billiton has 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. (DEIS 13.3.5; SEIS 25.1.3)	MM
	BHP Billiton has committed to ensuring that airborne contaminant levels remain within the appropriate health standards. (DEIS 22.6.7; SEIS 25.1.3)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>In order to reduce the impact and risk of dust emissions from the sulphur handling facility, the following mitigation measures have been proposed:</p> <ul style="list-style-type: none"> • an enclosed-screw, ship unloading system would be used rather than a traditional bucket or scoop arrangement, with the screw unloader fitted with spillage and wash-down collection devices • covered conveyor transfer points, including dust curtains at conveyor entry and exit points and dust suppression mist sprays within the conveyor skirts after the loading points • a telescopic chute within the storage shed to minimise drop distances, and hence reduce the potential for breakdown of the prill • an automatic reclaim system feeding onto an enclosed conveyor to reduce the need for a front-end loader, and therefore reduce the potential for the loader to crush the prill and generate fines • using sealed rail wagons, so sulphur could not escape while en route to Olympic Dam. (DEIS 5.9.5, 13.3.5; SEIS 5.7.1, 16.2) 	MM
	<p>If chemical suppressants were to be used to control dust emissions from the access corridor, a risk assessment would be undertaken prior to their use to ensure that health and safety values would not be negatively impacted. (SEIS 5.7.3)</p>	CM
	<p>Unloading operations would be undertaken on a hardstand surface of crushed rock and/or gravel. This compacted surface would minimise potential dust emissions. However, a water cart would be used as necessary to ensure that dust generation from the intermodal facility was minimised. (DEIS 13.3.5; SEIS 5.7.6)</p>	MM
	<p>The National Environment Protection (Ambient Air Quality) Measure (NEPM) ground level dust concentration and SA EPA air quality guidelines for airborne particulates would be met through design and operational management controls of mining operations at Olympic Dam. (DEIS 13.3.2)</p>	MM
	<p>Good quality haul roads would be installed and maintained with regular application of saline water and/or the application of suitable dust suppressants. (DEIS 5.5.4, 13.4.2)</p>	MM
	<p>A real-time dust and meteorological monitoring system would be installed at Olympic Dam to predict dust concentrations which would provide information for operational control of dust (DEIS 13.3.5). A meteorological weather station at Olympic Dam would remain operational for the life of the mine. (SEIS 29.7).</p>	MM
	<p>The provision of a 500 m separation between the RSF and Arid Recovery to minimise direct impacts from particulate matter. (DEIS 13.3.4)</p>	MM
	<p>The borrow pits excavated to provide material for the construction of the additional road and rail infrastructure would use water carts and mobile sprinklers to suppress dust during operations and prevent adverse impacts on the sensitive receivers. After excavation of the pit was finished, the pits would be ripped and left to revegetate. (DEIS 13.3.5)</p>	MM
	<p>Areas disturbed during construction of off-site infrastructure but no longer required would be rehabilitated in order to minimise ongoing dust impacts. (DEIS 13.3.5)</p>	MM
	<p>All conveyor transfer points at Olympic Dam (and East Arm) would contain fully enclosed spoon chutes, with dust curtains at entry and exit points. Dust suppression mist sprays would be located within the skirts after the loading point and could cover the full width of the conveyed material. (DEIS 5.9.5)</p>	MM
	<p>Dry materials would be transferred using covered or otherwise enclosed conveyor systems, with baghouses at transfer points, and intermediate storage bins to minimise dust emissions. Differential pressure indicators would be fitted to alert operations personnel to a potential bag failure. (DEIS 13.3.4)</p>	MM
	<p>Dust suppression capabilities would be installed on the ore conveyor stacker to control dust. (DEIS 26.3.2)</p>	MM
	<p>The concentrate handling facility at the Port of Darwin would be a closed system. This would include enclosed concentrate storage and handling facility with a suitable ventilation system (13.3.5). Additional systems for spillage control that aim to control spills at source, contain them on-site and provide for clean-up equipment and procedures would be implemented. (DEIS 5.9.5, 11.5.2, Appendix E4.2.3, E4.8.1, E4.13)</p>	MM
	<p>Enclosed conveyors and transfer points for the transfer of concentrate from the concentrate shed to the ship's hold. (DEIS 5.9.5, 13.3.4, Appendix E4.2.3, E4.8.1)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Noise emissions (ID 3.2)	BHP Billiton has committed to maintaining external noise levels below 45 dB from the mining and processing operations, and to locate the accommodation village at a site which is a significant distance from these operations to manage noise and dust impacts. (DEIS 5.10.2, 14.4.2; SEIS 15.1)	MM
	As a result of noise associated with traffic movements on Olympic Way, some noise mitigation, in the form of noise barriers or other suitable technology, may be installed. The exact details relating to this would be discussed with potentially affected landholders before the construction phase began. (DEIS 14.5.2; SEIS 15.1)	MM
	Acoustic modelling undertaken for the proposed landing facility indicated that the noise criteria would likely be exceeded at the 12 nearest residences, requiring further management during the detailed design phase. Noise bunds and/or barriers could be used to mitigate noise generated from within the on-shore laydown areas of the landing facility, and such structures have been shown to reduce noise levels by between 5 dB and 20 dB. The addition of quieter underwater exhausts may assist in reducing noise from the barge engines and generators, and similar quiet muffler systems for the land-based vehicles may also be effective. (DEIS 14.5.2; SEIS 15.3)	MM/CM
	Monitoring of noise levels at and around the proposed landing facility would be undertaken when the facility is operating to confirm the accuracy of the modelling predictions and the effectiveness of any installed noise mitigation. (SEIS 15.3)	MP
	BHP Billiton would ensure that necessary measures are implemented to maintain operating noise levels for the proposed landing facility within applicable limits. (SEIS 31.2)	MM
	A monitoring program would be established to monitor noise levels at the pre-assembly yard. (SEIS 15.4)	MP
	If necessary, reduction measures would be implemented at the pre-assembly yard. These may include: <ul style="list-style-type: none">• installing noise barriers (typically bunding or fencing) around noise-generating activities and/or along the relevant boundary of the pre-assembly yard• relocating noise-generating activities to an area of the pre-assembly yard further from residences. (SEIS 15.4)	CM
	Noise monitoring would be undertaken when the Pimba intermodal facility was operational and mitigation measures implemented as necessary to meet the noise criteria at existing Pimba residences. Noise mitigation measures may include: <ul style="list-style-type: none">• disconnecting and shutting down the locomotive during loading and unloading (the modelling assumes that the locomotive remains attached and idling)• installing a noise barrier (bund or fence) at the southern boundary of the facility to shield Pimba residents from noise. These have been demonstrated to achieve in the order of 5 dB reduction for blocking line-of-sight, and up to 20 dB for larger, engineered noise barriers• installing double-glazing and/or insulation in Pimba residences. (SEIS 15.6)	MP/CM
	The access corridor would be screened by tree-planting. An environmental management plan for the construction and operation of the access corridor and landing facility would be communicated to residents. (DEIS 19.5.6)	MM
	Locate the proposed landing facility to minimise the number of properties that could be affected, and limiting operations to daylight hours, typically 7am to 7pm, to minimise nuisance noise to nearby residents. (DEIS 14.4.2)	MM
	Enclose the reverse osmosis section of the coastal desalination plant and the seawater intake pumping station. (DEIS 14.4.2)	
	Excessive noise generating activities from the operation of the concentrate handling facility (such as train shunting and unloading) would be undertaken within buildings and enclosures. (DEIS Appendix E4.8.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Point-source emissions (ID 3.3)	BHP Billiton would cooperate with the Australian and/or South Australian governments in any review of applicable SO ₂ criteria in an Australia context. (SEIS 14.1.2)	MM
	BHP Billiton would install a real-time sulphur dioxide monitoring system in the smelter to monitor the effectiveness of the ventilation systems. (DEIS Table 27.1; SEIS 26.1.2)	MP
	The four new sulphur burning acid plants would have exhaust stacks at least 50 m high and would operate to at least the same efficiency as the existing acid plant. (DEIS 13.3.4)	MM
	The proposed gas-fired power station would have a stack at least 35 m high. (DEIS 13.3.4)	MM
	The proposed additional calcining furnace would have a gas cleaning system installed that would treat the calciner off-gas to comply with the criteria. (DEIS 13.3.4)	MM
	The additional smelter anode furnace would have a similar gas cleaning system to that currently installed for the existing anode furnaces. (DEIS 13.3.4)	MM
	The gas cleaning systems in all smelter-based furnaces would be bypassed in the event of abnormal or emergency conditions. These bypass stacks would be interlocked to the process (DEIS 13.3.5)	MM
	The storage facility for elemental sulphur would be enclosed within concrete barriers and wind-disruptive fencing similar to the existing sulphur storage area. (DEIS 5.5.4)	MM
	One additional metallurgical gas acid plant (double contact, double absorption) would be constructed. These typically capture around 99% of the sulphur. (DEIS 5.5.4)	MM
The stack height for the anode furnaces would be determined during detailed design; it must be sufficiently tall to ensure ground level concentrations of emissions are acceptable and avoid the potential for ventilation gases to re-enter the smelting building. For the purposes of the Draft EIS a height of 35 m has been used. (DEIS 5.5.4, 13.3.4)	MM	
Radioactive emissions (ID 3.5)	The enclosed transport system would be designed so no concentrate could escape during routine operations. BHP Billiton would undertake appropriate monitoring to verify this. (DEIS 5.9.5, Appendix E; SEIS 26.1.1)	MM
	BHP Billiton has committed to an internal goal of 50% of the dose limit. This represents a goal for occupational exposure of 10 mSv/y above background for all individuals. Should this goal be exceeded (or was likely to be exceeded), appropriate action would be taken to ensure doses remained as low as reasonably achievable. (DEIS 22.6.5, Appendix E; SEIS 26.1.2)	MM/CM
	The final radiation monitoring program would be developed by BHP Billiton and approved by the appropriate state regulator before mining reached the ore body. (SEIS 26.1.2, 26.2.1)	MP
	BHP Billiton will conduct an ALARA (i.e. as low as reasonably achievable) optimisation study during the detailed design phase of the open pit and metallurgical plant. The study will identify opportunities in the design of the expansion to minimise doses to workers and the public. (DEIS 22.6.5, Appendix E; SEIS 26.1.2)	MM
	For the proposed open pit mine, the radiation management systems would be adapted to take into account the different exposure situation. (SEIS 26.2.1)	MM
	Real-time radon or radon decay product monitoring would be undertaken to help determine what steps if any are to be taken to ensure workers' exposures remained low during periods of low ventilation in the open pit. Environmental, atmospheric and meteorological monitoring equipment and software would also provide important information on expected weather conditions before such events occurred. Mechanical ventilation in targeted areas of the pit, and procedures such as ensuring personnel remained inside vehicles while in a low-ventilation area, are among the control mechanisms that may be used. (SEIS 26.2.1)	CM
	Material containing low levels of radioactivity would be encapsulated by an outer layer of benign material on the RSF. (DEIS 5.4.6, Appendix U; SEIS 26.2.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>During closure, the TSF would be covered with inert waste rock to provide containment in perpetuity for both tailings and radon. The depth of cover would be determined through on-site trials and test work, with the aim of ensuring that post-closure radiation levels did not produce (member of the public) doses of more than 1 mSv/y. (SEIS 26.2.3)</p>	MM
	<p>BHP Billiton would install a real-time sulphur dioxide monitoring system in the smelter to monitor the effectiveness of the ventilation systems. (DEIS Table 27.1; SEIS 24.1.1)</p>	MP
	<p>As a precaution, BHP Billiton would ensure that no kangaroos are harvested from within the expanded mine lease and made available for human consumption. (SEIS 26.6.1)</p>	MM
	<p>A closed transportation system would be implemented from Olympic Dam to the ship hold to effectively contain radioactive material and the potential for radiation exposure. (DEIS 5.9.5, E4.10.2)</p>	MM
	<p>Further reduce the potential for radiation exposure through an 'optimisation program' based on the ALARA principle. (DEIS 22.6.5, E4.10.2)</p>	MM
Greenhouse gas emissions (ID 3.6)	<p>BHP Billiton has made a goal of reducing greenhouse gas emissions (reportable under the National Greenhouse and Energy Reporting (Measurement) Determination 2008) to an amount equivalent to at least a 60% reduction (i.e. to an amount equal to or less than 40%) of 1990 emissions, by 2050. An annual 'road map' that quantified emission reduction opportunities and achievements would also be produced. (DEIS 13.2.1; SEIS 6.3.1, 32.2.3)</p>	MM
	<p>An Energy and Greenhouse Gas Management Plan would be developed and this document would set interim goals, targets and timelines for emissions reduction based on reduction projects that may or may not include those examples identified in Figures 13.3a and 13.3b. The Plan would also identify further greenhouse gas reduction strategies and projects and would establish modelling to forecast, via an emissions trajectory, the likely reduction pathway from commencement of operations to 2050. (DEIS 13.2.2; SEIS 13.1)</p>	MM
	<p>BHP Billiton would comply with the relevant requirements of an emissions trading scheme if and when it was implemented, and the effect of such a scheme on the viability of particular greenhouse gas abatement projects, and hence the projected emissions trajectory for the expanded operation would be detailed within the Energy and Greenhouse Gas Management Plan. (SEIS 13.2)</p>	CM
	<p>Opportunities to increase the proportion of renewable electricity used in the expanded operation and further reduce electricity demand would be investigated further during detailed design, and documented in the proposed Olympic Dam Energy and Greenhouse Gas Management Plan. (DEIS 13.2.1, 13.2.2; SEIS 13.2)</p>	MM
	<p>BHP Billiton is committed to using low-carbon emission energy where practicable for the proposed expansion. This includes constructing and operating an on-site cogeneration power station (250 MW) and using renewable electricity, contracted through the National Electricity Market (NEM), to power the coastal desalination plant (35 MW). The Draft EIS included a commitment to source 35 MW of electricity for the desalination plant via renewable electricity. BHP Billiton has now extended that commitment to include sourcing the additional 22 MW required for all four pumping stations from renewable electricity contracted via the NEM.</p> <p>The Draft EIS included other measures, including the use of energy efficiency measures in Hiltaba Village and Roxby Downs, and further opportunities would be investigated during detailed design. Examples of such measures discussed in the Draft EIS included solar water heating for new BHP Billiton-owned houses and community buildings in Roxby Downs and the permanent accommodation units, laundries and central buildings at Hiltaba Village. (DEIS 5.8.8, 5.9.6, 13.2.1, 13.2.2; SEIS 5.6.1, 5.6.2, 6.3.1, 13.1, 32.2.3)</p>	MM
	<p>BHP Billiton recognises that technologies such as using waste oil as a blasting medium, the development and implementation of hybrid or LNG-powered haul trucks and light vehicles, and investigations into the use of second and third generation biofuels (originating from algal sources) may become viable on a large scale as they mature, and commits to staying up-to-date with their progress. (DEIS Appendix L, 13.2.5; SEIS 5.6.3, 13.1)</p>	MM
	<p>BHP Billiton would support the Australian Government in formulating an international sectoral agreement, and would welcome the opportunity to provide advice and comments to government in cooperation with national and international industry associations. (SEIS 13.2)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Marine discharge (ID 4.1)	It is proposed that the landing facility would be designated an Australian declared entry port. The Australian Customs Service and Australian Quarantine Inspection Service inspectors would certify that, among other border protection issues, the master of the vessel had complied with a ballast management program as stipulated under Australian law. (DEIS 16.6.13; SEIS 5.7.2, 29.1.3)	MP
	The return water diffuser would be designed and operated to deliver, as a minimum, the dilution predicted in the Supplementary EIS at 100 m from the diffuser and the dilution required to mitigate significant impacts at the nearest cuttlefish breeding habitat. (SEIS 17.7.5, 17.7.6)	MM
	Water quality monitoring before commissioning and during operation of the desalination plant would include pH measurements at key locations to confirm there were no changes to the pH outside the mixing zone. (SEIS 17.3.1)	MP
	BHP Billiton has committed to undertake further ecotoxicology studies to recalculate the species protection trigger value (SPTV) before the desalination plant starts operating if the return water chemical characteristics change from those assessed. Should the tests be required and reveal that additional dilutions are required to attain a revised SPTV, the design of the diffuser would be modified accordingly. (SEIS 17.10.7)	CM
	The emergency response procedures for spills in the marine environment will adhere to requirements specified in Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (AMSA 2007) and any relevant requirements stipulated by the National Plan State Committee. Environmental monitoring of flora and fauna and water quality would be undertaken as outlined in the Marine Flora and Fauna Monitoring Program and the Marine Water Quality Monitoring Program, respectively. These documents will be finalised and provided to government for review well before construction activities and operation begin at the landing facility. Annual public reporting of the environmental performance of Olympic Dam operations, including the new infrastructure proposed for Upper Spencer Gulf, would continue using the operation's annual environmental report. (SEIS 29.1.1)	MM
	BHP Billiton would ensure that chlorine is neutralised prior to discharge or disposed of to land, with only traces of common water treatment chemicals being present in the return water. (SEIS 17.8.4)	MM
	Further testing would occur to confirm the SPTV should the anti-scalant applied to the desalination process be changed from that tested. In the event that re-testing is required, BHP Billiton would liaise with the Australian and South Australian governments to determine the most appropriate tests to be conducted. (SEIS 17.4.9)	CM
	Water quality (including dissolved oxygen) at Point Lowly would be monitored using salinity/temperature data loggers or potentially other means for at least two years prior to construction, during construction and once the plant became operational. During operation of the plant, salinity would be monitored continuously at a number of strategic locations, including in the Australian Giant Cuttlefish breeding habitat. Current speeds would also be monitored off Point Lowly for sufficient time to enable the model predictions to be validated before and during operation of the plant. The data would be retrieved in real-time (using live telemetry) enabling appropriate management responses to be initiated should dilution targets be exceeded. (DEIS 16.6.5; SEIS 17.5.3, 17.11.4, 17.12.6)	MP/CM
	BHP Billiton is committed to providing support and input into regional environmental management and monitoring with regulators and other users and occupiers of the Upper Spencer Gulf, to assist in a collective and collaborative approach to managing the marine environment of the Upper Spencer Gulf. (SEIS 29.1.9)	MM
	BHP Billiton would support all appropriate measures to ensure the long-term conservation of the cuttlefish breeding aggregation at Point Lowly. (SEIS 17.10.3)	MM
	BHP Billiton has committed to programs to monitor Australian Giant Cuttlefish populations and other marine flora and fauna at Point Lowly and would work with appropriate stakeholders to develop a capability to conduct marine biological work in the Point Lowly region. (SEIS 21.4.2)	MP
	BHP Billiton has committed to continue financing surveys of Australian Giant Cuttlefish abundance and biomass, which will continue to improve the understanding of natural population variability. BHP Billiton has committed to undertaking an annual survey of the Australian Giant Cuttlefish population at Point Lowly to establish a suitable baseline for the cuttlefish population prior to before construction and operation of the desalination plant. (SEIS 17.10.2, 17.10.3)	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Backwash solids and associated coagulating and flocculating agents would be settled in ponds or filtered centrifugally prior to the residual liquid being discharged to sea. The solids would be dried in evaporation ponds and periodically removed for off-site land disposal at an appropriate licensed facility. (DEIS 5.7.4, 13.3.5, 16.4.1)	MM
	Pre-filtration particulates and associated residual chemicals would be disposed of on land, and the use and discharge of process chemicals minimised (DEIS 16.5.2)	MM
	The membranes used in reverse osmosis would be cleaned every few months using agents such as acids, bases and surfactants, and the wastewater collected would be disposed of on land in a managed pond, where the water would evaporate and the solids would be collected and disposed of to a licensed landfill. (DEIS 5.7.4, 16.4.1)	MM
Containment of tailings and mine rock (ID 4.2)	Potentially reactive material would be encapsulated within layers of non-reactive material. The RSF cover would be constructed out of benign rock such as sandstone, quartzite and limestone to resist erosion in the long term. (DEIS 5.4.6, 12.5.2, 23.8.2; SEIS 5.2, 28.1.2)	MM
	An engineered structure such as a berm, catch bank or similar would be constructed to contain stormwater for a 1-in-100-year event within the sub-catchments intersected by the ultimate footprint of the RSF. The containment structure would be designed and constructed well before the RSF footprint expanded to a size where large run-off volumes could be generated. (SEIS 11.2.2)	MM
	Ongoing field trials and testing of mine rock removed from the open pit would continue to identify materials most likely to resist erosion in the long term (determined on the basis of trials undertaken on-site) and assist in developing an optimum RSF design. (DEIS 5.4.6; SEIS 28.1.2)	MP
	In conjunction with relevant agencies, including the IAEA, ARPANSA and the SA EPA, BHP Billiton commits to undertaking a formal radiation risk assessment (called a FEP study) for the TSF. (SEIS 26.2.3)	MM
	The depth of cover for the TSF would be determined through on-site trials and test work, with the aim of ensuring that post-closure radiation levels did not produce doses of more than 1 mSv/y. (SEIS 26.2.3)	MM
	Conceptual cover designs for TSF cells were presented in Section 10 of Appendix F1 of the Draft EIS. These would be further defined during the operational phase of the mine. As with development of RSF cover options, final composition and design of TSF covers would take into account the results of field trials and testing of materials undertaken on-site in order to integrate site specific factors that may influence materials selection and design. (DEIS 23.8.4; SEIS 28.1.2)	MP
	The armouring placed adjacent to the outermost TSF slope at closure may be left at its constructed slope angle (30 to 37 degrees) to minimise the length of slope that would be susceptible to erosion. (DEIS 23.8.4; SEIS 5.3)	MM
	Final rock armouring of the outer TSF walls for the expanded operation would occur at closure if deemed necessary. The closure design does not affect the operating embankment design. That is, the cross-section illustrated in Figure 6.3 of Appendix F1 to the Draft EIS would apply during operation. After closure, the armouring could provide additional stability and erosion protection if required. The armouring would be constructed in lift heights and using materials that would ensure that segregation of larger boulders does not impact the long-term stability of the armouring. (DEIS 23.8.4; SEIS 5.3)	CM
	The material applied to the surface of the cap of the TSF would be designed to discourage the growth of deep-rooted species of flora that could penetrate the surface layer of the cap, potentially causing metal uptake by vegetation from soil at the deep root zone of the cap substrate. (DEIS 23.8.4; SEIS 28.1.4)	MM
	Each embankment of the TSF would undergo further detailed foundation investigation, seepage and stability analysis and detailed design along its length, whether serving as an external perimeter embankment or as a divider embankment when cells are nested. Each embankment would be designed to satisfy Australian National Committee on Large Dams (ANCOLD) stability criteria throughout its functional and post-closure life cycle. Further details regarding the design and construction of nested divider walls would be developed during detailed design as necessary to suit available construction materials and local foundation conditions prior to permitting. (DEIS Appendix F1; SEIS 5.3)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	There is no specific geotechnical limit to the height of the RSF, and the final height would be determined through an economic assessment of the costs associated with hauling mine rock material either vertically or horizontally. For the purpose of the Draft EIS, the final height of the RSF would be 150 m above ground level. (DEIS 5.4.6)	MM
	The use of mine rock would be investigated in greater detail during the definition phase of the project, with the aim of minimising disturbance and maximising beneficial reuse while ensuring adequate material was available throughout the life-of-mine to enclose the class A and B materials within the RSF. Non-reactive rock would be used for the outermost walls of the RSF and no reactive material would be placed under outer slopes. (DEIS 5.4.7, 23.8.2)	MM
	<p>RSF design controls to minimise seepage would include:</p> <ul style="list-style-type: none"> • traffic compaction on all surfaces (except the ultimate inner and outer RSF slopes) to minimise rainfall infiltration (DEIS 12.5.2) • each haul truck load would be categorised into one of the classes of rock, and would be tracked, enabling the material to be selectively placed to surround all reactive rock in the RSF with benign and/or neutralising material (DEIS 5.4.6) • placing a layer of benign and/or neutralising material (overburden) at the base of the RSF to increase the potential for neutralisation and natural attenuation of seepage fluid. (DEIS 5.4.6, 12.5.2, 12.6.2) 	MM
	The RSF would be operated and closed (at the end of mine life) to minimise infiltration of rainwater into zones containing potentially reactive material, minimising seepage from these areas (DEIS 12.6.2)	MM
	Tailings cells would be capped when they reached their target design height, and when it was safe for vehicles to access the TSF surface. (DEIS 23.8.4)	MM
	The rehabilitation plans for the RSF and TSF would be updated as more information about the characteristics of the mine rock was gathered during the operation phase of the mine. (DEIS 23.9.1)	MM
Major storage seepage (ID 4.3)	Olympic Dam would continue its monitoring and replacement system for piezometers, and on occasions investigations of a particular area of the tailings identifies the need to replace the piezometers prior to their scheduled replacement or servicing. (SEIS 5.3)	MP
	The existing groundwater monitoring program would be extended to monitor effects on groundwater quality from seepage and would be compared against predicted solute movement. The data would be assessed regularly and incorporated into the BHP Billiton Environmental Management Program. (DEIS 12.6.2; SEIS 12.1.4)	MP
	As seepage from the TSF and RSF would change the concentrations of elements in the vicinity of these facilities, BHP Billiton proposes to either apply for an exemption or seek a variation to the quality criteria of the local groundwater system, thus complying with the requirements of the Environment Protection Policy. (DEIS 12.6.2; SEIS 12.5.1, 12.5.2)	MM
	If rates of seepage transport away from the TSF or RSF were higher than predicted, risks would be reviewed and contingency plans and remedial actions would be investigated. (DEIS 12.6.2; SEIS 12.5.2)	CM
	The existing operating manual for the TSF would be reviewed to incorporate expansion requirements. Also, an operating manual for the RSF would be developed to include controls and contingencies. (DEIS Appendix U; SEIS 12.5.2)	MM
	Should continual monitoring and assessments during the operational phase indicate that the impact may occur (i.e. attenuation less than demonstrated and infiltration sufficient to change regional groundwater gradients) then a number of mitigation options are available to protect the receptor. These mitigation measures are dominantly passive in nature and would not require post-closure maintenance. A robust option for prevention of solute transport off site could include the installation of interception wells and passive drains to increase interconnectivity and induce vertical leakage from the Andamooka Limestone to the more permeable sections of Arcoona Quartzite aquifer (Corraberria Sandstone). Induced vertical leakage would limit potential for off-site seepage migration within the Andamooka Limestone and result in greatly increased capture of seepage to the pit. (SEIS 12.5.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	If the occurrence of lateral seepage from the base TSF or RSF was higher than predicted, risks would be reviewed and contingency plans and remedial actions would be investigated. The concepts discussed above would be refined during the detailed design phase of the project and documented within the management plans for the mine site. (SEIS 12.5.2)	MM
	<p>The design of the TSF incorporates controls to minimise seepage including:</p> <ul style="list-style-type: none"> • increasing the volume of liquor recycled from the TSF • constructing larger cells with greater evaporation capacity • collecting liquor through a central decant arrangement • installing a liner beneath the central decant systems • recycling water from the mound beneath the TSF. (DEIS 5.5.6) 	MM
	BHP Billiton would, in order to meet the requirements of the Environment Protection (Water Quality) Policy 2003, either apply for an exemption or seek a variation to the groundwater quality criteria for the local groundwater system. (DEIS 12.6.2)	MM
Stormwater discharge (ID 4.4)	Stormwater would be controlled within defined management areas and there would be no discharge of stormwater from the SML (Special Mine Lease). (DEIS 11.5.1; SEIS 10.4, 11.1)	MM
	An engineered structure such as a berm, catch bank or similar would be constructed to contain stormwater for a 1-in-100-year event within the sub-catchments intersected by the ultimate footprint of the RSF. The containment structure would be designed and constructed well before the RSF footprint expanded to a size where large run-off volumes could be generated. (SEIS 11.2.2, 11.3.1)	CM
	Run-off quantities and qualities from the RSF and Low Grade Stockpile would be further evaluated during the first few years of operation, when the footprint of the RSF was small and the risk of run-off release negligible. (SEIS 11.2.2)	MP
	Water that reached the pit floor, either directly or from the pit walls, would flow to a sump. This water would be used preferentially for dust suppression when the pit floor and haul roads were dry, and the remaining water would be available for recycling in on-site processes. (SEIS 11.4.3)	MM
	As soon as practicable in the mining operation, storage capacity by means of a pit sump would be created, thus facilitating the capture of rainwater and allowing for recycling to on-site processes. During the early, rapid development stage of mining operations, temporary sumps would be designed to facilitate capture and management of rainfall inflows in the same manner. (SEIS 11.4.3)	MM
	During periods of prolonged rainfall or extreme rainfall events (i.e. beyond a 1-in-100-year rainfall event), several contingencies are available and would be explored to determine the optimum outcome. Depending on its quality, excess pit water could be reclaimed for use as appropriate in the process plant; delivered to the existing evaporation ponds or newly proposed balance ponds; or stormwater from the pit could be pumped to existing natural depressions in the dune-swale landscape within the ultimate disturbance footprint of the RSF. (DEIS 11.5.1; SEIS 11.4.3)	CM
	The washdown water from the washdown of copper concentrate rail wagons would be collected, recycled, and ultimately returned to Olympic Dam so there would be no discharge of washdown water at the Port of Darwin. (DEIS 11.5.1; SEIS 18.3)	MM
	Stormwater in the vicinity of the pit rim would be diverted to natural depressions of the dune-swale landscape (e.g. clay pans) by a pit-rim bund and elevated haul roads. This would ensure containment of run-off from the low-grade ore stockpile within a defined management area. (DEIS 11.5.1)	MM
	The new entry road to the mine site would be constructed as a levee to contain a 1-in-100 year flood. There would be no discharge of stormwater from the SML. Stormwater from the metallurgical plant and hardstand areas would be directed to tertiary containment ponds and reused wherever possible. (DEIS 11.4.2, 11.5.1, 11.5.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	The TSF and stormwater retention ponds would be designed to have sufficient capacity (freeboard) to accommodate protracted and heavy rainfall. Additional freeboard of 0.5 m has been incorporated into the TSF design to account for possible changes due to global climate change. (DEIS 11.4.2)	MM
	Stormwater from Hiltaba and Roxby Downs would be reused where practicable, dependent upon its beneficial use. (DEIS 11.5.1)	MM
	The stormwater drainage system for the desalination plant and landing facility would be designed so that: <ul style="list-style-type: none"> • rainfall on disturbed areas of the site would be collected, treated and channelled to an on-site detention basin sized to accommodate a 1-in-100-year ARI event • discharge from the on-site detention basin should match pre-development flows • rainfall landing above disturbed areas would be diverted around the site and discharged downstream of the detention basin. (DEIS 11.5.1) 	MM
	A 'closed system' would be used to transport, store and convey concentrate from Olympic Dam to the ship's hold at the Port of Darwin. (DEIS 5.9.5) (see ID 2.3 for details)	MM
	First flush stormwater run-off from the site would be directed to on-site detention basin(s) for settling of sediments prior to discharge to the established Port of Darwin stormwater detention system (as per the Port of Darwin's Draft Stormwater Management Plan). (DEIS Appendix 11.5.1, E4.8.3)	MM
	No wagon wash-down water would be discharged to the natural environment, rather washing would occur in an enclosed building, with the water collected, reused and ultimately transported back to Olympic Dam in a rail wagon. (DEIS 11.5.1)	MM
	The water used to wash the outside surfaces of the rail wagons would be collected and treated to recover concentrate particles that may have attached to the wagon during unloading (i.e. tipping). The treated water would be contained in on-site storage tanks for reuse in subsequent wash cycles, while any collected solids would be placed on the concentrate stockpile for export, resulting in a zero discharge decontamination system. (DEIS Appendix 5.9.5, E4.2.3, E4.13)	MM
	From time to time (preliminary estimates suggest about every four to six months), a proportion of the wash-down water would be removed from the system and the system would be 'topped up' with replacement water. The removed water would be discharged into a holding tank or similar unit and railed back to Olympic Dam to be disposed of within the Olympic Dam tailings storage facility. (DEIS Appendix 5.9.5, E4.2.3, E4.8.3, E4.13)	MM
Fauna interaction with operations (ID 4.5)	Mitigation measures designed to minimise light and noise impacts would be implemented wherever practicable, and similar habitats near the affected areas would be protected to compensate, to some extent, for the reduced habitat value. Ongoing support would be provided for Arid Recovery (in order to maintain alternative habitats in northern areas of the conservation area). Another mitigation measure was setting aside suitable habitat areas for conservation purposes elsewhere in the region, as part of the significant environmental benefit (SEB) offset strategy. (DEIS 15.5.9, 15.5.11; SEIS 16.2)	MM
	Light spillage would be mitigated to some degree by the use of directional lighting and screens to concentrate light on operations. The use of lamps that are less attractive to insects than conventional lights could also be investigated. (DEIS 15.5.9; SEIS 16.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton has demonstrated a commitment to environmental responsibility, to continual improvement, to enhancing biodiversity protection and to assessing and considering ecological values in its investment and operational activities and closure planning.</p> <p>Examples of this with specific relevance to reducing bird interactions with tailings include:</p> <ul style="list-style-type: none"> • a suite of bird deterrent trials over the past 20 years including hazing, laser lights, gas guns and radar systems • continuing to research bird deterrents as per the research projects noted above for a more advanced marine radar system, the collaborative research project to determine the most effective light wavelengths and flicker rates for aversive stimuli in an effort to develop a more effective deterrent, and the sound identification software to better establish bird species visiting the tailings in real time for potential use in an on-demand deterrent system • modifying the TSF design for the proposed expansion as part of continual improvement and enhancing biodiversity protection by: <ul style="list-style-type: none"> - maximising recycling of free liquor from the tailings cells back to the metallurgical plant, thus reducing the attractant for birds - not building additional evaporation ponds, again reducing the attractant for birds - increasing the rate of liquor loss via evaporation by constructing larger TSF cells, again reducing the attractant for birds - restricting access by fauna to free liquor by collecting supernatant liquor that has not evaporated from beaches in a central decant pond, and covering the decant pond with netting or similar - restricting access by fauna to free liquor by covering the 60 ha stormwater/tailings water balance ponds with netting or similar - providing the opportunity to reduce the amount of free liquor on the existing tailings cells by providing sufficient capacity in the newly proposed cells to recycle free liquor from the existing evaporation ponds and tailings cells over the larger beaches of the new TSF cells. (DEIS 5.5.6,15.5.7; SEIS 16.4, 29.5) 	MM
	<p>If, after maximising returns to the process, there is still an excess of water on the TSF cells (for example, after a large storm event), provision has been made to redirect this water to the balance ponds, and in the summer months to dispose of it by bleeding it into the tailings stream for redirection onto the tailings beaches to maximise evaporation. (DEIS 5.5.6; SEIS 5.3)</p>	CM
	<p>It is possible that nets could be fitted to the existing, smaller evaporation ponds to restrict bird access and this will be investigated further. (SEIS 16.6)</p>	MM
	<p>The proposed balance ponds would be designed to reduce the potential for fauna access through the installation of a bird-resistant cover. (DEIS 5.5.6, 15.3.10; SEIS 5.3)</p>	MM
Waste disposal (ID 4.6)	<p>BHP Billiton currently operates a waste management system based on the waste hierarchy (as illustrated in Figure 5.11 of the Supplementary EIS) and this would continue during the design, construction and operation phases of the expanded operation. (DEIS 5.6; SEIS 5.4.1, 25.2.1)</p> <p>The existing site Waste Management Environmental Management Plan (EMP) would be updated to detail reduction, reuse and recycling schemes for all waste material streams where environmentally and commercially satisfactory arrangements are possible. (DEIS 5.6; SEIS 5.4.1)</p> <p>The proposed landfill facility would be designed and operated in accordance with the relevant sections of the SA EPA Environmental Management of Landfill Guidelines (2007). (DEIS 5.6.2; SEIS 5.4.1)</p> <p>In the absence of a viable, cost effective recycling or reuse solution, the current practice of disposing of spent catalyst in the tailings storage facility (TSF) would continue. (DEIS 5.6.6; SEIS 5.4.2)</p> <p>Investigations regarding initiatives to increase tyre life would be progressed during detailed design. (DEIS 5.6.3; SEIS 5.4.3)</p>	MM MM MM MM MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>A procedure would be developed, similar in content to that of leading practice and would contain some site-specific variation, for the following general requirements:</p> <ul style="list-style-type: none"> • tyres to be positioned in neat rows and as close as possible to the toe of the RSF • avoiding the disposal of tyres at noses in the RSF geometry • position tyres in depressions within the RSF so they are more easily covered by a smooth dump progression • heavy vehicle tyres to be stacked no more than four-high • light vehicle tyres to be placed within heavy vehicle tyres • no more than 100 tyres exposed at any one time • inert material would be used to cover the tyres • geotechnical advice would be sought to determine the appropriate depth of cover to ensure RSF stability. (SEIS 5.4.3) <p>Temporary tyre storage would comply with relevant legislation, and be consistent with the requirements of the SA EPA Guidelines for Waste Tyres and the SA Fire Services General Guidelines for the Outdoor Storage of Used Tyres. (SEIS 5.4.3)</p> <p>It is anticipated that no fuelling/refuelling or transfer of ships waste (i.e. kitchen waste, general waste, oils and the like) would occur at the landing facility. (SEIS 29.1.1)</p> <p>It is expected that temporary and/or mobile re-fuelling and waste management and transfer facilities would be located at the landing facility site during its construction. BHP Billiton would require the Construction EMPs to include management strategies, controls and monitoring for the re-fuelling and waste management and transfer facilities (whether temporarily fixed or mobile). (SEIS 29.1.1)</p> <p>BHP Billiton would continue to investigate options for recycling acid plant catalyst containing vanadium pentoxide. (DEIS 5.6.6)</p> <p>General office waste and putrescible wastes generated at Port of Darwin facilities would be disposed of to local waste management facilities by licensed contractors. (DEIS Appendix E4.8.8)</p> <p>The backwash solids (from the desalination plant) would be periodically removed from the lagoons and disposed of at a licensed landfill facility to minimise the potential for odour. (DEIS 13.3.5)</p>	<p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p>
<p>Radioactive waste (ID 4.7)</p>	<p>Low-level radioactive wastes consisting of used personal protective equipment and laboratory wastes generated during the operation of the expanded mine and processing facilities would be diverted to designated areas of the tailings storage facility (TSF) for disposal. (DEIS 5.6.5; SEIS 5.4.4)</p> <p>The requirements for disposing of waste materials into the TSF are summarised in a site procedure, which details the required communications, assessments and record keeping associated with this waste disposal pathway. This procedure would be updated as required for the proposed expansion. All equipment and material that leaves the expanded operation would be subject to a radiation clearance check to ensure compliance with relevant requirements. (SEIS 5.4.4)</p> <p>No wagon wash-down water would be discharged to the natural environment, rather washing would occur in an enclosed building, with the water collected, reused and ultimately transported back to Olympic Dam in a rail wagon to be disposed of within the Olympic Dam tailings storage facility. (DEIS 11.5.1)</p>	<p>MM</p> <p>MP</p> <p>MM</p>
<p>Community interactions – Community relations (ID 5.1)</p>	<p>BHP Billiton has committed to ongoing community consultation with affected parties on the proposed expansion. Interaction with the many stakeholders who have already been consulted as part of the project planning phase would continue throughout the project construction, execution and decommissioning phases, where relevant. (DEIS 7.4; SEIS 7.1)</p> <p>The proposed Social Management Plan would establish programs for consultation and communication with the community and other stakeholders on the proposed expansion and emerging issues. (DEIS 19.5.7; SEIS 7.1, 29.6)</p>	<p>MM</p> <p>MM</p>

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Consultation and engagement with the Australian, South Australian, Northern Territory and local governments would continue throughout the project's phases. (DEIS 7.4; SEIS 7.1)	MM
	Interaction with the large group of stakeholders, who have already been consulted during the planning phase, would continue throughout the construction, execution and decommissioning phases. BHP Billiton would also continue discussions with directly affected pastoralists and other landholders in relation to infrastructure easements, including land access, fencing along access tracks, crossing points for pastoral activities and strategies for dealing with potential incidents during construction and operation. (DEIS 7.4, 19.5.6; SEIS 7.4)	MM
	The Department of Defence has given BHP Billiton approval for minor encroachment of the above proposed infrastructure on the WPA and CTA. As further investigations for the expansion progressed, BHP Billiton would seek the appropriate approvals and permits to facilitate the construction and operation of the water, power, access and rail corridors. (DEIS 6.4.2; SEIS 7.4)	MM
	BHP Billiton would monitor the construction and operation of all project components and their impacts on the surrounding areas and maintain consultation with associated stakeholders. BHP Billiton would undertake ongoing consultation and negotiation with stakeholders, with the intention of ensuring suitable arrangements are in place to enable stakeholders and infrastructure to coexist. BHP Billiton would provide regular updates to stakeholders of activities as detailed planning progresses and would provide advanced notice of construction activities and transport movements to reduce access or disturbance issues. (DEIS 7.4, 19.5.6; SEIS 7.7)	MM/MP
	BHP Billiton has made a commitment to the NT Government of ongoing cooperation and consultation to facilitate a mutually beneficial integration of the proposed BHP Billiton facilities and the East Arm Master Plan. (SEIS 20.2)	MM
	BHP Billiton would work with the NT government to develop air quality monitoring criteria specific to the Port of Darwin facilities. (SEIS 20.2)	MP
	BHP Billiton would develop appropriate site-based procedures relating to extreme weather events such as cyclones, these procedures would also extend to transport activities. (SEIS 20.2)	CM
	BHP Billiton will continue to maintain a close working relationship with the Darwin Port Authority to integrate detailed planning for the expanded facilities. (SEIS 20.2)	MM
	<p>The security approach and arrangements that would be implemented for operations at the East Arm facilities in collaboration with the Darwin Port Corporation and other relevant authorities and agencies along the rail line from Olympic Dam to Darwin would include:</p> <ul style="list-style-type: none"> • installing, monitoring and maintaining security measures around the proposed unloading, storage, office and maintenance areas to prevent unauthorised access • locking access points to the conveyor systems and transfer towers at all times and fitting them with alarm systems and remote sensors connected to the overall security control system • requiring all construction and operation employees to possess and carry a Maritime Security Identification Card, as required by the Australian Government's maritime ports security program • strictly controlling visitor access in line with BHP Billiton and Port of Darwin requirements. <p>During rail transport from Olympic Dam to the Port of Darwin standard measures would include:</p> <ul style="list-style-type: none"> • direct rail services, with trains stopping only for necessary operational requirements (i.e. passing other trains en route) • lids being securely fitted to all wagons throughout the journey • train drivers following established communication protocols throughout the journey, including reporting: <ul style="list-style-type: none"> - whereabouts/status - any incidents or delays that adversely affected the journey. (DEIS Appendix E; SEIS 20.2) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Security assessments and appropriate security arrangements implemented before larger volumes of uranium oxide and Olympic Dam copper concentrate containing uranium were transported via East Arm to international customers. (SEIS 20.2)	CM
	<p>Design of the copper concentrate storage facility will consider:</p> <ul style="list-style-type: none"> • adoption of dust mitigation measures • compliance with NT guidelines for mosquito management • maintenance of the 'closed system' to prevent the transfer of material outside contained areas • installation of suitable control devices to monitor equipment performance and allow emergency shutdown procedures to be activated • collection and separation of stormwater from contained areas for treatment. (SEIS 20.2) 	MM
	<p>BHP Billiton would continue to consult and engage with relevant government departments and other stakeholders to further develop and refine the closure criteria, including final land uses, rehabilitation, management and ongoing monitoring.</p> <p>The Rehabilitation and Closure Plan for the expanded Olympic Dam would be updated regularly to incorporate new technologies and methodologies as they arise in order to ensure the approach to closure remains industry best practice. (DEIS 23.8; SEIS 9.1, 28.1.1)</p>	MM
	<p>In line with industry best practice, BHP Billiton would promote social and community cohesion within Hiltaba Village and Roxby Downs and aim to pro-actively manage the interaction and relationship between residents in nearby townships and the construction workforce. This would be undertaken as part of the Social Management Plan and would also address factors associated with the contractor community that may directly or indirectly affect the 'liveability', and sense of community in Hiltaba Village, including the services, programs, activities, communication, and room allocation policies that affect workers satisfaction and their day-to-day physical, social and psychological needs. This would be undertaken in consultation with the workforce and the community, and would build on best practice strategies implemented at other remote Australian mine sites. (SEIS 21.5.3)</p>	MM
	<p>BHP Billiton would arrange for the village managers to employ leisure and lifestyle coordinators to organise a range of recreational, cultural, social and sporting activities and events at Hiltaba Village. (DEIS 19.5.4; SEIS 21.5.3)</p>	MM
	<p>Contracts with service providers would include clauses outlining BHP Billiton's expectation that contractor employees behave in a manner consistent with these BHP Billiton values. These values would be covered in workforce inductions, and include indigenous heritage and cultural awareness training. In addition, BHP Billiton would organise education programs and provide information on cultural diversity to employees, new and existing residents of Roxby Downs, and workers accommodated at Hiltaba Village. (DEIS 19.5.5; SEIS 21.5.3)</p>	MM
	<p>BHP Billiton would also work with the South Australian Government to ensure the availability of affordable housing for low- and moderate-income households. (DEIS 19.5.3; SEIS 21.2.1)</p>	MM
	<p>In coordination with appropriate authorities (including SA Police), BHP Billiton would establish arrangements to ensure that tourist and sightseers would be managed to minimise impacts on the surrounding landowners and residents. (SEIS 21.4.2)</p>	MM
	<p>BHP Billiton would develop and maintain a schedule to deliver housing to meet the expected increase in housing demand from the mine and non-mine workforce. It would also continue to work with the urban land and housing development industry to ensure adequate industry resources are available to meet accommodation requirements. In particular, BHP Billiton would seek to enter development agreements with South Australian building companies to secure competitive resourcing and the timely delivery of future housing supplies. (DEIS 19.5.3; SEIS 21.6)</p>	MM
	<p>BHP Billiton has committed to work collaboratively with the South Australian Government to develop and implement a strategy to ensure the provision of an appropriate diversity of accommodation to meet the socio-economic requirements of the demographic mix of the Roxby Downs community as it expands. (DEIS 19.5.3; SEIS 21.6)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	To reduce the likelihood of adverse impacts associated with the construction workforce, BHP Billiton plans to construct separate, high-quality accommodation (i.e. Hiltaba Village) with on-site entertainment, recreation and sports facilities. (DEIS 19.5.2)	MM
	The existing accommodation area of Olympic Village would be relocated as part of the proposed expansion. (DEIS 5.10.2)	MM
	Barge unloading at the landing facility would occur during daylight hours, typically between 7am and 7pm (5.9.5; 14.4.2; 19.5.6). Unloading of barges at the landing facility would not occur at night. (DEIS 19.5.6)	MM
	BHP Billiton would continue to consult with landholders potentially affected by the proposed landing facility, access corridor and pre-assembly yard in Port Augusta. (DEIS 19.5.6)	MM
	BHP Billiton would investigate the installation of a viewing platform to allow organised tour groups to safely view the open pit and mining operations. (DEIS 20.5.3)	MM
	<p>BHP Billiton commits to its obligations under the Olympic Dam Agreement, which includes:</p> <ul style="list-style-type: none"> • establishing a trust to manage payments by BHP Billiton and to support community and business development initiatives for Aboriginal communities in northern South Australia (as defined in the Agreement) • implementing the Heritage Management Protocol to protect the Aboriginal ethnographic and archaeological values of the region. (DEIS 17.5.2) 	MM
	<p>The Heritage Management Protocol includes the following:</p> <ul style="list-style-type: none"> • proceed with the Olympic Dam Expansion in a manner that is respectful of the interests and concerns of the Native Title parties • fund ethnographic mitigation measures • have areas surveyed for archaeological sites by an archaeologist using a scientifically valid predictive sampling model prior to significant ground disturbance • provide funding for one member from each of the Kokatha, Barngarla and Kuyani to be trained to a standard sufficient for them to be engaged as field assistants in the completion of field surveys • give Native Title parties copies of each archaeological report it commissions • undertake archaeological mitigation measures • take reasonable measures to safeguard culturally sensitive information in a manner identified by the Native Title Party that provided the information. (DEIS 17.5.2) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
<p>Community interactions – Crime and anti-social behaviour (ID 5.1)</p>	<p>Measures to address concerns relating to crime and anti-social behaviour resulting from the expansion, which would be implemented by BHP Billiton, included:</p> <ul style="list-style-type: none"> • initiating visitor management policies and procedures for Hiltaba Village and initiatives relating to crime and anti-social behaviour • providing for a proactive community-policing style of security and surveillance presence in Hiltaba Village to prevent and respond to incidents • developing, in collaboration with police, a strategy to ensure a rapid response to incidents • continuing to implement the 'Fit for Work' program, including routine drug and alcohol monitoring of workers • continuing to implement the workforce induction and education information strategies to communicate safety and security expectations • liaising with police management and providing regular updates of workforce schedules • working with the council and police to develop safety awareness education and information programs • establishing a complaints procedure whereby any reported incidents of unacceptable behaviour would be investigated • providing internal security arrangements in accommodation villages to manage inappropriate behaviour by workers and visitors • proactive discussion and engagement with the community and other stakeholders to establish a social management system to monitor and respond to issues, including the implementation of additional management strategies where necessary. (DEIS 19.5.2; SEIS 21.5.1) <p>As presented in Section 19.5.5 of the Draft EIS, BHP Billiton would participate in the development of a plan by the South Australian Government to address social services and infrastructure associated with the expansion and collaborate with government and non-government organisations to maintain health services (including drug and alcohol services, domestic violence and anger management programs) in Roxby Downs to a reasonable standard. (DEIS 19.5.4; SEIS 21.5.1)</p>	MM
	<p>BHP Billiton would be willing to contribute to, and participate in a workshop or study on the local impacts of prostitution, if this was organised by the South Australian Police or other key stakeholders. BHP Billiton would also work with the Premier's Council for Women to promote women's safety in Roxby Downs and Andamooka throughout the expansion period. BHP Billiton would also progress the detailed design of village accommodation to reduce the potential for crime and anti-social behaviour and promote women's safety. (SEIS 21.5.1)</p>	MM
	<p>Whilst the establishment of safe houses and/or emergency accommodation is a matter for the South Australian Government to consider, BHP Billiton would work with the government to achieve practical outcomes through the mechanism of the Social Management Plan and social management partnership. (DEIS 19.5.7; SEIS 21.5.1)</p>	MM
	<p>BHP Billiton would work with the Roxby Downs Family and Youth Forum to develop and implement a youth strategy, which could include strategies targeted towards at-risk groups and behaviours. Strategies such as personal development and assertiveness programs or other specific programs for young people could also be considered for Andamooka, potentially as an extension of programs in Roxby Downs. BHP Billiton would also continue to support the provision of youth officer services and youth activities in conjunction with Roxby Downs Council and the South Australian Government. (DEIS 19.5.7; SEIS 21.5.1)</p>	MM
	<p>To facilitate the provision of youth services, programs and facilities, BHP Billiton would participate in developing a social services and infrastructure plan prior to the expansion proceeding, and take account of needs in both Roxby Downs and Andamooka. BHP Billiton would also collaborate with the South Australian Government and Roxby Downs Council to facilitate the timely provision of education, sporting, leisure, social, cultural, entertainment and training facilities, as outlined in the Draft Master Plan. (DEIS 19.5.4; SEIS 21.5.1)</p>	MM
	<p>BHP Billiton would continue to support youth employment and training opportunities by expanding its traineeship and apprenticeship intake; supporting TAFE SA programs in Roxby Downs; and holding a Careers Expo in Roxby Downs (in conjunction with the Roxby Downs Education and Workplace Training Forum). (DEIS 19.5.1; SEIS 21.5.1)</p>	MM
	<p>Other potential mitigation strategies outlined in Appendix Q4 of the Draft EIS, which could potentially be considered by the South Australian Government and BHP Billiton, include:</p> <ul style="list-style-type: none"> • establishing a forum for ongoing communication and consultation with young people to discuss issues and requirements from their perspective • investigating and implementing appropriate youth leadership programs • developing crime prevention and safety programs targeted specifically at young people. (DEIS Appendix Q4; SEIS 21.5.1) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	BHP Billiton would work with the SA Police, as the agency responsible for law enforcement, to address issues associated with crime and anti-social behaviour as required and appropriate through the mechanism of the Social Management Plan and social management partnership. (DEIS 19.5.2; SEIS 21.5.2)	MM
	BHP Billiton and the Roxby Downs Council have recently agreed to jointly fund a project officer to work with the Roxby Downs Alcohol and Substance Abuse Partnership to mobilise community support and reduce alcohol misuse and address drug and alcohol problems in Roxby Downs. (SEIS 21.5.2)	MM
	BHP Billiton would be willing to participate developing a liquor licensing accord, if this was supported by the community, SA Police and other stakeholders. BHP Billiton would be willing to participate on a community safety committee in Andamooka, if this was supported by the community, SA Police and other stakeholders. (SEIS 21.5.2)	MM
Community interactions – Economic development (ID 5.1)	BHP Billiton is committed to the South Australian Government’s Industry Participation Policy. BHP Billiton has stated its intention to take account of South Australian Department of Trade and Economic Development’s Industry Participation Policy (DTED 2005) in awarding contracts. (DEIS 19.5.1, SEIS 6.3.1)	MM
	BHP Billiton will continue to work with government, regional economic boards, TAFE and other training and education providers to build business capacity and maximise local employment and business opportunities. It will also liaise with the Industry Capability Network (ICN) South Australia, supply industries and regional economic development boards to identify and best position State, regional and local suppliers to participate in the expansion of Olympic Dam. (DEIS 19.5.1; SEIS 21.3)	MM
	The activities that BHP Billiton would undertake to enhance local businesses opportunities would include: <ul style="list-style-type: none"> • continuing to convene the Contractor Framework Implementation Team – while the focus of this group is on BHP Billiton’s Health, Safety, Environment and Community (HSEC) Standards at Olympic Dam, it also provides a forum for communication and engagement with contract companies • conducting supply forums (locally and elsewhere in South Australia) to provide information on current and future business opportunities, tendering processes and pre-qualifications of businesses • re-instituting a web address for potential suppliers to register and express interest in tender packages for the project • re-establishing an on-line project supplier database, in conjunction with the Industry Capability Network South Australia, to enable potential suppliers to register their interest in the project • continuing to fund the Olympic Dam Indigenous Participation Program to develop the capacity of Indigenous companies and contractors to supply goods and services to Olympic Dam • working with government, regional economic development boards, and education and training providers to support capacity building, meet skills requirements, and link existing or potential suppliers to improve local competition • participating on the Roxby Downs Business Forum, if re-formed by local businesses • giving consideration to the South Australian Government’s Industry Participation Policy to give local businesses a full, fair and reasonable opportunity to be considered for work in the expansion of Olympic Dam. (SEIS 21.3) 	MM
	BHP Billiton also plans to expand the supply of serviced industrial land, as outlined in the Roxby Downs Draft Master Plan, in order to support the development of new businesses and industries. This includes the development of a new heavy industrial estate near the junction of Olympic Way and the heavy vehicle bypass, 6 km north of Roxby Downs, to provide approximately 150 new serviced allotments. An extension of the existing light industrial area, north of the township, is also proposed to provide approximately 90 additional serviced allotments. (SEIS 21.3)	MM
	The Olympic Dam Agreement also commits BHP Billiton to providing training and employment programs for Aboriginal communities, and provides for the development of Aboriginal-owned business enterprises. (DEIS 17.5.2; SEIS 18.2)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton will continue to provide cross-cultural awareness information to all people working at Olympic Dam to promote respect for Aboriginal culture and heritage. (DEIS 17.5.2; SEIS 18.2)</p> <p>BHP Billiton would work through regional economic development boards and the Industry Capability Network of South Australia to maximise opportunities for South Australian and Aboriginal businesses by:</p> <ul style="list-style-type: none"> • establishing a data base of SA businesses with an interest in the project • facilitating the pre-qualification of SA businesses • providing information about current and future opportunities and tendering processes • supporting business training, development and diversification • linking existing or potential suppliers to improve local competitiveness. (DEIS 19.5.1) 	MM
<p>Community interactions – Employment and training (ID 5.1)</p>	<p>More detailed workforce planning (including occupational categorisation and skills set requirements) will be completed and provided to government, training organisations and other relevant stakeholders should the project be approved, and as detailed engineering is completed and major construction commitments are planned. (DEIS 19.5.1; SEIS 21.2)</p>	MM
	<p>BHP Billiton commits to supporting a number of employment and training initiatives of the Australian and South Australian governments and would continue to participate in government and industry groups to address skills shortages and reduce potential labour impacts. (DEIS 19.5.1; SEIS 21.2.1)</p>	MM
	<p>BHP Billiton will continue to work with industry, government, training providers and other stakeholders to reduce potential labour impacts from the proposed expansion, and to maximise state-wide benefits through collaborative workforce planning and skills development. (DEIS 19.5.1; SEIS 21.2.1)</p>	MM
	<p>Programs to attract, train and retain the necessary workforce would be implemented by BHP Billiton, in collaboration with government, providers and other relevant organisations. (DEIS 19.5.1; SEIS 21.2.1)</p>	MM
	<p>BHP Billiton is committed to developing an Aboriginal Engagement Plan as part of the expansion project, which would cover the following aspects:</p> <ul style="list-style-type: none"> • details of commitments under the Olympic Dam Agreement • an outline of people within the organisation who have responsibility for Aboriginal engagement and delivery of the commitments • cross-cultural training for all employees and contractors • plans for employment and training of local Aboriginal people and identifying potential positions for Aboriginal people, including training programs and apprenticeships • identifying contracting or subcontracting opportunities that could be made available to local Aboriginal businesses • consideration of wider business or joint venturing opportunities with local Aboriginal businesses • support for local Aboriginal business development. (DEIS 19.5.1; SEIS 21.2.1) 	MM
	<p>BHP Billiton, in consultation with the Roxby Downs Council and the community, would continue to monitor the situation in Roxby Downs and, where a gap exists, would work with relevant stakeholders to develop a strategy to address identified shortfalls.</p> <p>In specific circumstances, BHP Billiton may, on a case-by-case basis, consider providing support or incentives to attract or retain essential services. For example, BHP Billiton currently provides housing assistance to doctors in private practice in Roxby Downs to secure and retain their services. (SEIS 21.2.1)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	Employment targets would be determined as part of the Social Management Plan which would be finalised and implemented by BHP Billiton, in collaboration with the South Australian Government and the community. (DEIS 19.5.1, 19.5.7; SEIS 21.2.1)	MM
	BHP Billiton would continue to work with government, education and training providers, regional economic development boards, and other stakeholders to develop local technical and professional skills. (DEIS 19.5.1; SEIS 21.2.1)	MM
	BHP Billiton would continue to review and implement targeted programs for overseas employees. (DEIS 19.5.1)	MM
	To address community perceptions about the safety and security of transporting concentrate and uranium oxide, BHP Billiton would launch an education program providing details of the minimal impact of the product prior to the increased transport. (DEIS Appendix E4.10.5)	MM
	<p>BHP Billiton would address the skills shortage by supporting a number of Australian and South Australian governments' new employment and training initiatives. In addition, BHP Billiton would undertake a number of specific measures, including:</p> <ul style="list-style-type: none"> • initiatives targeting employment and skills formation for Aboriginal people • expanding its traineeship, apprenticeship and new graduate intakes • providing bursaries for two students per year to study mining engineering for four years at Adelaide University • supporting TAFE SA programs in Roxby Downs • supporting a Careers Expo in Roxby Downs • working with governments, university, TAFE colleges and high schools to encourage the development of curricula that are relevant to the mining industry • targeting high schools and universities to attract new employees • proactively working with government, regional development boards, TAFE and other training and education providers to build the capacity of South Australian businesses and to meet skills requirements. (DEIS 19.5.1) 	MM
	<p>BHP Billiton would address potential skills shortages and labour impacts by participating in government and industry groups by considering:</p> <ul style="list-style-type: none"> • recommendations raised in recent reports by the National Institute of Labour Studies • the extent and composition of labour force requirements and demand/supply issues • vocational education and training requirements for both new and older workers, including pre-vocational training, traineeships and apprenticeships, on-the-job training, retraining and multiskilling • more flexible and 'family friendly' work environments • the location, training and other issues associated with the potential use of labour from industry sectors in decline (such as manufacturing). (DEIS 19.5.1) 	MM
Community interactions – Visual amenity (ID 5.1)	<p>Specific details of the landscaping associated with the proposed desalination plant has not yet been determined and would be undertaken during the detailed design phase of the project. BHP Billiton or its nominated contractor would liaise with relevant authorities in ensuring appropriate landscaping was included in the building plans. Only native species would be planted in this area. (SEIS 5.7.4, 6.3.2, 23.1)</p> <p>Impacts would be further minimised by selecting colours for the desalination plant buildings that suit the surrounding landscape, and landscaping appropriately to screen the desalination plant and associated infrastructure. (DEIS 20.5.2; SEIS 23.1)</p>	MM
	Designated crossing points of the landing facility access corridor would be established by BHP Billiton, in consultation with landholders, to ensure access and activities could continue on either side of the corridor (see Section 21.11.1 of the Supplementary EIS for details). (SEIS 21.10)	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	The landing facility access corridor would be screened by tree planting at appropriate locations. Environmental Management plans for the construction and operation of the access corridor and landing facility would also be prepared. (SEIS 23.2)	MM
	BHP Billiton would continue to consult with landholders potentially affected by the proposed landing facility, access corridor and pre-assembly yard plant and provide regular updates as detailed planning progresses. An environmental management plan for the construction and operation of the access corridor and landing facility would also be communicated to residents. Advance notice would also be given of transport movements to reduce access or delay issues. (DEIS 19.5.6; SEIS 21.10, 23.2)	MM
	BHP Billiton would continue to consult with landholders potentially affected by the proposed desalination plant and provide regular updates as detailed planning progresses. It would also give advance notice of construction activities in order to reduce disruption and delays to local home owners and visitors to Point Lowly. (SEIS 21.10)	MM
	Blasting for the land based section of the desalination plant intake pipe, if required, would not take place on a Sunday or public holiday and, where practicable, would be scheduled to minimise disruptions during peak holiday periods. (SEIS 21.10)	MM
	When siting Roxby Downs expansion area, some of the natural dunes and vegetation would be retained to minimise the potential impacts on visual amenity. The potential visual impact of the proposed RSF and TSF would be further minimised by creating suitable conditions for vegetation growth around the lower slopes and base of the RSF and TSF (DEIS 20.5.1)	MM
Community interactions – Roxby Downs Master Plan (ID 5.1)	<p>Stormwater and wastewater (including grey water) in Roxby Downs would be collected, treated and reused.</p> <p>New drainage networks and stormwater retention basins would be built to capture stormwater flows for treatment and reuse where appropriate. The Roxby Downs Draft Master Plan specifies that the design of the expanded town would be engineered to enable wastewater to be responsibly stored and reused wherever practicable, taking into consideration allowance for the population of Hiltaba Village. (SEIS 11.1.1)</p>	MM
	<p>BHP Billiton has responsibility for undertaking all planning within the town (other than the building design and landscaping of buildings to be owned or occupied by the South Australian Government or municipality) and developing serviced land for housing and other commercial and community facilities to serve the population</p> <p>In keeping with these responsibilities, BHP Billiton has prepared the Roxby Downs Draft Master Plan. Once the draft plan was finalised by the South Australian Government, BHP Billiton would collaborate with relevant stakeholders to implement the plan by:</p> <ul style="list-style-type: none"> • providing for the timely and orderly release of serviced land to meet housing demand in the mine and non-mine workforce • providing the necessary infrastructure (including sewage treatment, reclaimed water irrigation, potable water, landfill, and power) to support growth in the township • expanding the supply of serviced industrial land, including the development of a new heavy industrial estate near the junction of Olympic Way and the heavy vehicle bypass, and an extension of the existing light industrial area on Olympic Way • collaborating with relevant stakeholders to facilitate the timely provision of other facilities, including open space, recreational, civic and commercial infrastructure. <p>In order to investigate and deliver appropriate social services and infrastructure for the expansion, BHP Billiton has also committed to:</p> <ul style="list-style-type: none"> • actively participate in the development of a plan by State Government to address social services and infrastructure requirements prior to the expansion proceeding • work in partnership with the State Government and non-government agencies to support and contribute to the provision of essential services in Roxby Downs • collaborate with government and non-government organisations to maintain a reasonable standard of health care in Roxby Downs. (DEIS 19.5.4; SEIS 21.7.3) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton in its management plan for all shipping to- and-from the landing facility, would aim to minimise this risk through the following measures:</p> <ul style="list-style-type: none"> • 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. (SEIS 25.1.2) 	MM
	<p>Exclusion zones would be established around the intake and outfall pipelines during the construction phase, as barges and other heavy equipment would be operating. The size and nature of the zones would be determined in consultation with the construction contractor and designed to protect the safety and well-being of the public and construction staff. (SEIS 5.5.1)</p>	MM
	<p>The nature and size of exclusion zones and markers (if any) around the proposed intake and outfall pipeline during operation has not yet been determined, but would be detailed in operational management plans, which would be communicated to the public once finalised. (SEIS 5.5.1)</p>	MM
	<p>BHP Billiton will work with South Australian Government agencies and the Roxby Downs Council, which are responsible for road safety, to coordinate and align safety initiatives covering road users potentially affected by the expansion project. (SEIS 22.2)</p>	MM
	<p>BHP Billiton would continue to work with the South Australian Government and appropriate agencies to identify sustainable longer-term solutions whereby the road transport of ammonium nitrate could be replaced by rail transport. (SEIS 5.7.5)</p>	MM
	<p>BHP Billiton would implement strict radiation controls at their East Arm wharf facilities at the Port of Darwin through design features such as enclosed material handling systems and proven management systems, similar to the systems that already exist at Olympic Dam. (SEIS 26.1.1)</p>	MM
	<p>BHP Billiton is committed to working with the relevant national, state and territory emergency services organisations throughout the project development and implementation stages, to ensure proper training, planning and coordination of emergency response services. (SEIS 31.1.1)</p>	MM
	<p>BHP Billiton would establish arrangements to minimise potential safety issues and other impacts associated with an increased number of visitors to the landing facility area, in cooperation with the SA Police and other appropriate authorities. (SEIS 21.5.4)</p>	MM
	<p>BHP Billiton has committed to relocating the facilities at Olympic Village to the new heavy industrial area, or to the Roxby Downs industrial area. (DEIS Appendix U; SEIS 26.5.1)</p>	MM
	<p>In order to investigate and deliver appropriate social services and infrastructure, BHP Billiton would:</p> <ul style="list-style-type: none"> • actively participate in the development of a plan by State Government to address social services and infrastructure prior to the expansion proceeding • arrange for a recreation officer/events coordinator to organise a range of recreational, cultural, social and sporting activities for the construction workforce • work in partnership with the State Government and non-government agencies to support and contribute to the provision of essential services in Roxby Downs. (DEIS 19.5.4) 	MM
	<p>BHP Billiton would collaborate with government and non-government organisations to maintain a reasonable standard of health care in Roxby Downs. (DEIS 19.5.4)</p>	MM
	<p>BHP Billiton would also promote safe sex messages and drug and alcohol awareness programs in Hiltaba Village and the workplace to minimise potential impacts on community health. (DEIS 19.5.4)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton would promote community identity and cohesion in Roxby Downs by:</p> <ul style="list-style-type: none"> • providing accommodation for the permanent LDC workforce in Roxby Downs, as outlined in the Roxby Downs Draft Master Plan, to support the development of ongoing relationships between residential and non-residential workers • implement education programs promoting responsible social and environmental behaviours and ethics (DEIS 15.5.11) • hold regular community forums on the expansion project in Roxby Downs and Andamooka • work with the council to provide an ongoing and proactive new residents' program and community-building activities to facilitate positive cultural and social interaction. (DEIS 19.5.5) 	MM
<p>Community interactions – Health (ID 5.1)</p>	<p>As with the drinking water currently supplied to Olympic Dam and Roxby Downs, drinking water supplied as part of the proposed expansion (including drinking water sourced from the Point Lowly desalination plant) would be treated to within applicable health and useability guidelines. The ANZECC water quality standards and the NHMRC drinking water guidelines would be used for this purpose. (SEIS 25.1.4)</p>	MM
	<p>BHP Billiton and the Roxby Downs Council agreed (in June 2010) to jointly fund a project officer to:</p> <ul style="list-style-type: none"> • help the Roxby Downs Alcohol and Substance Abuse Partnership to identify funding opportunities and apply for grants • strengthen communication and cooperation between agencies • organise community sector workshops to improve inter-sectoral communication and collaboration • organise events that target national campaigns such as Drug Action Week/National Health Week • collaborate with the Roxby Downs Area School on school-based education programs relating to alcohol and substance abuse • develop promotional and media strategies to address issues. (SEIS 21.7.2) 	MM
	<p>BHP Billiton would promote drug and alcohol awareness programs in the workplace and at Hiltaba Village to minimise potential impacts on community health. In addition, BHP Billiton will continue to implement the 'Fit for Work' program, including routine drug and alcohol monitoring of workers. (DEIS 19.5.2, 19.5.4; SEIS 21.7.2)</p>	MM
	<p>As outlined in Section 19.5.4 of the Draft EIS, BHP Billiton has indicated it would collaborate with government and non-government organisations to maintain health services in Roxby Downs to a reasonable standard, including community health services (including health promotion and education, mental health support and drug and alcohol services), domestic violence and anger management programs, and health screening and culturally-specific services. BHP Billiton would also promote safe-sex messages and drug and alcohol awareness programs in Hiltaba Village and the workplace to minimise potential impacts on community health. (DEIS 19.5.4; SEIS 21.7.2)</p>	MM
<p>Community interactions – Other (ID 5.1)</p>	<p>To meet the transport needs of its workforce, BHP Billiton has committed to expanding the existing workforce commute bus service between Roxby Downs and Olympic Dam as the township expands. A workforce bus service would also be provided between Hiltaba Village and Olympic Dam. (DEIS 19.5.4; SEIS 21.3)</p>	MM
	<p>BHP Billiton commits to supporting a study into the feasibility of such a public transport system for Roxby Downs as part of the next phase of the project. (SEIS 27.7.3)</p>	MM
	<p>BHP Billiton would continue to work closely with the council in relation to traffic management strategies. (DEIS 22.6.9; SEIS 21.7.3)</p>	MM
	<p>BHP Billiton would support an application by the licensee of RoxFM to extend its range as this may prove beneficial in communicating project-related initiatives and road traffic messages. (SEIS 21.7.3)</p>	MM
	<p>BHP Billiton has indicated it would participate in the development of a plan for the government to address social services and infrastructure before the expansion proceeded. In addition, BHP Billiton would continue to provide support to Andamooka as it has previously. (DEIS 19.5.4, SEIS 21.7.4)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton will continue to have regular and ongoing dialogue with the Port Augusta Council about the project in order to manage social impacts and contribute to sustainable community development in Port Augusta. (SEIS 21.7.5)</p>	MM
	<p>BHP Billiton has committed to develop a new accommodation site for permanent LDC workers in Roxby Downs, as outlined in the Roxby Downs Draft Master Plan. In addition, the provision of transitional housing and an increase in accommodation for permanent LDC workers in the township is planned to moderate housing demand during the initial growth period, and contribute to maintaining stability in house prices and housing affordability. Short stay LDC workers would be accommodated at Hiltaba Village, and encouraged to remain there for social and recreational activities.</p> <p>In addition, in order to facilitate positive cultural and social interactions within the community, and to encourage community identity and cohesion, BHP Billiton would:</p> <ul style="list-style-type: none"> • work with the council to provide an ongoing and proactive new residents' program and support community-building activities • hold regular community forums on the expansion project • maintain the community development grants program • continue to support community groups and community-based activities, volunteer programs, and community liaison. <p>As part of the Social Management Plan, BHP Billiton would also promote understanding, acceptance and integration between the long distance commute workforce and the existing community. This would be based on community consultation and engagement with stakeholder groups, including residents and workers. (DEIS 19.5.3; SEIS 21.8)</p>	MM
	<p>BHP Billiton would ensure telephone and broadband internet access is available in village accommodation to facilitate this communication.</p> <p>BHP Billiton would review existing workforce rosters for the expanded operation to meet safety requirements, employee preferences, productivity objectives and contemporary practice.</p> <p>BHP Billiton would consider mechanisms to improve the support available to workers and their partners, in order to sustain workers' well-being and good family functioning. As part of the Social Management Plan, BHP Billiton would consider initiatives such as family visiting days; establishing an online social network forum; holding social events for workers and their partners to meet; providing information and training on strategies to manage long distance commute relationships; and other support programs to assist positive relationship functioning.</p> <p>BHP Billiton would work with the government and community to improve amenities and facilities in Roxby Downs and provide high quality living environments and workplace conditions. (DEIS 19.5.3; SEIS 21.8)</p>	MM
	<p>BHP Billiton recognises Andamooka as an important neighbouring community, and will work to manage potential negative risks and social impacts, contribute to sustainable community development and enhance the company's licence to operate and grow its business, in line with its Community Group Level Document (BHP Billiton 2010b). (DEIS 19.5.5, SEIS 21.9.2)</p>	MM
	<p>A navigation plan and procedures would be prepared in consultation with the Department for Transport, Energy and Infrastructure, and approved before vessels begin unloading at the landing facility. (SEIS 21.11.1)</p>	MM
	<p>BHP Billiton would develop and implement other strategies and management systems to minimise the impact of vessel movements on other boating activities in the channel and to maintain public safety. This may or may not include initiatives such as:</p> <ul style="list-style-type: none"> • requiring vessels or tugs to use standard VHF marine channels 6, 8 and 12, and emergency communication on VHF 16 so that recreational boats could contact either the vessel or tug on VHF radio, if necessary • using their whistles, if vessels or tugs are unsure of the intentions of recreational or other marine traffic (i.e. standard is five short blasts) • developing a co-ordinated community communication and engagement program to provide detailed information on activities associated with the landing facility • working with Government and community groups to promote marine safety in and around Port Augusta, through initiatives such as information signs at boat ramps, information booklets and pamphlets. (SEIS 21.11.1) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton would continue to consult with landholders potentially affected by the proposed desalination plant and provide regular updates as detailed planning progresses. It would also give advance notice of construction activities in order to reduce disruption and delays to local home owners and visitors to Point Lowly. (SEIS 21.11.2)</p> <p>Operational restrictions on anchoring, mooring, diving and fishing in the vicinity of the intake structure and the diffusers on the outfall pipe, which would be located between 950 m and 1,150 m off Point Lowly, would be communicated to local boat owners and people in the Point Lowly and surrounding area, at the two dive shops in Whyalla and regional boat ramps, including at Point Lowly, and updated on marine charts. (SEIS 21.11.2)</p> <p>BHP Billiton would continue to implement workforce inductions and education information strategies to communicate safety and security expectations and to promote responsible social and environmental behaviour and ethics. (SEIS 21.11.3)</p> <p>Responsibility for control of recreational off-road driving rests with local law enforcement agencies, but BHP Billiton would work with these agencies and the community to seek to manage off-road driving.</p> <p>BHP Billiton would develop and implement a management plan, in collaboration with the Roxby Downs Council, to minimise the environmental impact of recreational activities around Roxby Downs and Andamooka. This would be developed as part of the Social Management Plan. BHP Billiton would also implement an active education program promoting responsible social and environmental behaviour and ethics for all employees, contractors and residents on a range of social considerations, including care for the environment, and incorporating guidelines prohibiting recreational driving on pastoral or BHP Billiton land. (DEIS 15.5.11, 19.5.6; SEIS 21.11.3)</p> <p>Other measures outlined in the Draft EIS to manage recreational and off-road activities included:</p> <ul style="list-style-type: none"> • encouraging the use of existing designated recreational driving areas (such as the motocross track, go-kart track and Roxby Raceway/Speedway (the dirt circuit car club)) • continuing to implement education, training and awareness programs for BHP Billiton employees and contractors via inductions • informing the new residents of Roxby Downs and Hiltaba Village about appropriate recreational sites, opportunities and practices • working with community groups to increase community support for better management of recreational activities in the vicinity of Roxby Downs • encouraging membership of four-wheel-drive and motorbike clubs to promote responsible off-road driving • investigating the feasibility of establishing and signposting four-wheel-drive and motorbike circuits near Roxby Downs and managing unauthorised off-road driving • continuing discussions with government to ensure sufficient resources were available to monitor inappropriate off-road driving, and closing off and rehabilitating • implementing education strategies which address outdoor ethics and principles for the appropriate management of natural areas and inappropriate tracks. (DEIS 19.5.6; SEIS 21.11.3) 	<p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p> <p>MM</p>
<p>Community interactions – Access and disturbance (ID 5.1)</p>	<p>As stated in Section 5.9.5 of the Draft EIS, the landing facility is expected to operate between the hours of 7am and 7pm for two to three days every 11 days. Unloading would only take place between these hours. (DEIS 5.9.5; SEIS 5.7.2)</p> <p>It is possible, but not planned, that some vessel unloading and/or transport operations may occur outside of these times under exceptional circumstances. Should this be required, such operations would be undertaken in consultation with the South Australian Department of Transport, Energy and Infrastructure. (SEIS 5.7.2)</p> <p>Subsequent to the publication of the Draft EIS, and in response to submissions received, a revised access corridor route has been developed, locating the road further from residences and thereby reducing the potential impacts. (SEIS 5.7.3)</p> <p>The operating hours at the pre-assembly yard would be limited to the hours permitted for sites within 60 m of a residential zone, as outlined in the City of Port Augusta regulations. While no night-time construction activities are planned for the pre-assembly yard, some over-dimensional loads may be moved at night on the public road network to minimise traffic congestion (depending on further discussions with DTEI). There may also be short periods of after-hours transport-related activity that takes place under portable lighting at the pre-assembly yard, but any such activities would be completed before 10pm. (SEIS 5.7.4)</p>	<p>MM</p> <p>CM</p> <p>MM</p> <p>MM</p>

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	An environmental management plan for the construction and operation of the access corridor and landing facility would also be prepared and communicated to residents. (DEIS 19.5.6; SEIS 9.2)	MM
	To assist DTEI with future planning and resource allocation, BHP Billiton would undertake further hydrographic survey work in Upper Spencer Gulf and discuss with DTEI appropriate shipping routes, navigation aids and cost arrangements for such measures to ensure the safe passage of vessels and barges to and from the proposed landing facility. (SEIS 29.1.2)	MM
	<p>As part of the traffic management plan for the movement of over-dimensional loads, BHP Billiton, in consultation with DTEI, would undertake detailed planning and develop appropriate procedures for:</p> <ul style="list-style-type: none"> • the number of convoys permitted and overall make-up of such convoys for travel over a designated period • advance and rear warnings to approaching motorists to reduce their speed as they neared a passing bay (in the case of a road closure) or as they were approaching an over-dimensional load travelling north on the Stuart Highway or Olympic Way • emergency vehicles to transit past an over-dimensional load(s), where required • regular community announcements and notification of the timing of over-dimensional load movements to ensure that communities were well informed of such movements and, where possible, could plan their journeys to avoid delays. <p>BHP Billiton will continue to investigate other options to reduce the potential impact on road users and will continue consulting with DTEI on these options. (DEIS 19.5.6, 22.6.9; SEIS 22.1)</p>	MM
	BHP Billiton would cooperate with the SA Department of Transport, Energy and Infrastructure (DTEI) to establish a baseline road condition for the Stuart Highway, and agree on a process by which any adverse impact resulting from the movement of over-dimensional loads attributed to the proposed Olympic Dam expansion could be determined. (SEIS 22.1)	CM
	If the project is approved and detailed project planning progresses to completion, further details on the scheduling and frequency of over-dimensional loads will be prepared and provided to SA Police and other relevant agencies. (SEIS 22.1)	MM
	<p>BHP Billiton has committed to a number of traffic management measures for expansion-related traffic on the Stuart Highway north of Port Augusta which include:</p> <ul style="list-style-type: none"> • an Off-site Traffic Management Plan • construction of additional passing bays • limiting delays to no more than 45 minutes for road closures for over-dimensional loads • extensive community consultation programs. (DEIS19.5.6, 22.6.9; SEIS 22.1) 	MM
	The entrance of the proposed access corridor onto the Stuart Highway is approximately 1.5 km north of the rail line and would be designed in accordance with Australian standards and approval by the relevant authorities. (SEIS 22.2)	MM
	The only proposed road change on Olympic Way would be the installation of a roundabout at the intersection of the Roxby Downs–Pimba Road (Roxby Heavy Vehicle Bypass) (see Figure 22.2 of the Supplementary EIS). BHP Billiton would produce a proposed design for the roundabout that complied with Australian road design standards and work with DTEI and the Roxby Downs Council to ensure the design allowed for future road network developments that may be considered.	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	<p>BHP Billiton would aim to minimise delays and ensure the ongoing safety of the public and road users by implementing the following initiatives:</p> <ul style="list-style-type: none"> • pre-assembled modules would be moved outside morning and afternoon peak periods • the modules would be moved safely, and at suitable speed to minimise crossing times, keeping traffic delays to about five to 10 minutes • in conjunction with DTEI and the Port Augusta Council, suitable road signs would be erected advising of speed limits and the potential for delays, to ensure road users were prepared to reduce speed and stop safely before the crossing point • accredited traffic management personnel and SA Police would be on hand, where appropriate, to supervise and coordinate the movement of modules through the crossing point • contingency plans would be activated in the event of a breakdown or operational delay in the movement of a module through a crossing point to ensure delays to road users were minimised • a comprehensive and coordinated community communication and engagement program would provide detailed information, in advance, to the general public and road users, on activities associated with the crossing points at Shack Road, Caroona Road and the Eyre Highway. This would enable the public and other local road users to plan their travel arrangements and decide whether to use alternative routes. (DEIS 19.5.6, 22.6.9; SEIS 22.2) 	MM
	<p>In the lead up to commencement of construction activities for the desalination plant and in conjunction with DTEI, BHP Billiton will review the existing and future traffic demands along Port Bonython Road. Based on the revised traffic profile along this road, BHP Billiton will determine suitable traffic management requirements that need to be incorporated into the Draft Off-site Traffic Management Plan. (SEIS 22.2)</p>	MM
	<p>BHP Billiton has 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. (DEIS 13.3.5; SEIS 25.1.3)</p>	MM
	<p>The relationship between the inhalation of radon decay products and smoking (UNSCEAR 2000) is being considered by the ICRP at present, and BHP Billiton will comply with the requirements that arise from these deliberations. (SEIS 25.1.3)</p>	MM
	<p>There would be an ongoing focus on managing risk of 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. (DEIS 22.3, 22.7; SEIS 25.2.1)</p>	MM
	<p>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. (DEIS 22.3; SEIS 25.2.1)</p>	MM
	<p>All infrastructure would be designed to meet or exceed the relevant codes and standards with regards to structural integrity, including integrity associated with earthquake loadings. (DEIS 8.4.1; SEIS 8.1)</p>	MM
	<p>BHP Billiton would submit recorded radiation doses on an annual basis in line with current submissions to state authorities. (SEIS 26.1.3)</p> <p>In the unlikely event that doses were elevated, the construction workers would be classified as radiation workers, undergo further induction and training and be required to comply with the site radiation safety rules. (DEIS Appendix S; SEIS 26.4.4)</p>	MM/CM
	<p>For the expansion, as is the case for the current operation, the administration area would also be monitored to determine the doses to these workers. Construction workers are not expected to receive doses exceeding the member of the public limit of 1 mSv per year. Routine monitoring would be conducted to confirm this. All construction workers' time on site would be recorded in a database for future reference so dose estimates can be made if necessary. (DEIS Appendix S; SEIS 26.4.4)</p>	MP

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
	As part of the current site operating standards, which would be used in the expanded operation, all workers receive a radiation induction and are informed of risks from exposure to radiation. Workers are asked to reveal pregnancies at the earliest opportunity to ensure that management measures are implemented to ensure their doses for the remainder of the pregnancy are less than 1 mSv. (SEIS 26.4.4)	MM
	For work experience students under 18, doses would be monitored and maintained below the member of the public limit of 1 mSv. (SEIS 26.4.4)	MP
	A 'safety case' for the current operation is being conducted and would incorporate all components of the proposed expansion. This includes: <ul style="list-style-type: none"> • identifying the hazards and risks of the proposed expansion • describing how the risks are controlled • outlining the safety management system and its implementation • monitoring and review of effectiveness. (DEIS 22.5.2) 	MM
	As the design for the new facilities develop, further reviews will be conducted, including a full fire assessment and a fire risk study. (SEIS 25.2.1)	MM
	Fire suppression systems would be fitted to the sulphur handling facility in accordance with relevant Australian Standards to minimise the extent of any combustion, and the facility design would eliminate the risk of static charges that may provide a source of ignition. (SEIS 5.7.1)	MM
Community interactions – (ID 5.1) Cultural awareness	A program of ongoing archaeological investigations has been agreed to by the Kokatha, Barngarla and Kuyani groups. (DEIS 17.5.3)	MM
	As part of the Olympic Dam Agreement, cross cultural training of staff is recognised as an important means to protect the Aboriginal cultural values of the region. Part of the induction program for all new employees and contractors at Olympic Dam would also include cultural awareness training. (DEIS 17.5.6)	MM
Community interactions – (ID 5.1) Community education	BHP Billiton would implement a management plan to minimise the environmental impact of recreational activities around Roxby Downs. (DEIS 15.5.11)	MM
	BHP Billiton would support Roxby Downs Council's proposed by-laws to manage cats and dogs more effectively in Roxby Downs by: <ul style="list-style-type: none"> • informing new residents about the ecological impacts associated with cats • subsidise a de-sexing program for cats • subsidise the installation of cat enclosures (runs) in backyards • investigate the possible establishment of an RSPCA branch in the township. (DEIS 15.5.11) 	MM
	To assist in fostering a greater understanding of impacts of particulates on community amenity and health, BHP Billiton would provide information to residents of Roxby Downs and Hiltaba Village on dust and dust emissions through: <ul style="list-style-type: none"> • information packs for all new and existing residents • a web-based system that enables the community to have access to dust monitoring results • feedback to the community about on-site and off-site environmental performance through the Annual Environmental Management and Monitoring Report. (DEIS 13.3.5) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/ EM Program ID	Management measures and commitments	MM / MP / CM ¹
	<p>BHP Billiton would provide information to employees, and make available information to all new and existing residents of Roxby Downs and Hiltaba Village on:</p> <ul style="list-style-type: none"> • dust • radiation • feral animals control • weed control • care for the environment • cultural diversity within the workforce and community • other social considerations as appropriate. (DEIS 19.5.5) 	MM
	<p>BHP Billiton would develop and implement an education program providing details of the minimal impact of the proposed transport of uranium oxide and concentrate along the Adelaide to Darwin rail line. (DEIS Appendix E4.10.5)</p>	MM
<p>Community interactions – (ID 5.1) Traffic and transport</p>	<p>BHP Billiton would provide for the safe and efficient movement of materials and goods in and out of Olympic Dam through:</p> <ul style="list-style-type: none"> • installation of a rail/road internodal facility at Pimba and the construction of a rail line between Pimba and Olympic Dam (DEIS 5.9.3) • installation of a landing facility south of Port Augusta to handle pre-assemblies • construction of a road-over-rail overpass on Olympic Way north of Woomera (DEIS 5.9.2) • installation of up to 15 passing bays along the Stuart Highway and Olympic Way that would enable traffic to pass safely. (DEIS 5.9.2, 22.6.9) 	MM
	<p>To provide for the safe movement of traffic between, and within, Roxby Downs, Hiltaba Village and Olympic Dam, BHP Billiton would:</p> <ul style="list-style-type: none"> • install a dual carriageway from the intersection of Olympic Way and the Roxby Downs heavy vehicle bypass road to the mine site (DEIS 19.5.6) • install new roads, intersections and engineered traffic controls such as roundabouts in Roxby Downs (DEIS 5.9.4) • install traffic calming measures to maintain speed control in Roxby Downs • provide a fleet of buses for travel between the construction site and accommodation areas. (DEIS 19.5.6, 22.6.9) 	MM
	<p>Inconvenience to the general public and the safe and efficient transport of large loads and pre-assemblies between Port Augusta and Olympic Dam would be managed by:</p> <ul style="list-style-type: none"> • notification of road usage and interruptions through regular community announcements • aiming to transport loads at times that are out of peak periods • apply a goal of ensuring that the maximum time that the general public may be disrupted by individual road closure events is 45 minutes. (DEIS 19.5.6) 	MM
	<p>Railway crossings with appropriate signage would be provided where the rail line crosses minor roads and access tracks to pastoral stations. (DEIS 5.9.2)</p>	MM
	<p>An expansion of the existing long distance commuter workforce bus service between Roxby Downs and Port Augusta would be provided if there was sufficient demand. (DEIS 5.10.2, 19.5.4)</p>	MM
	<p>Final decommissioning of the metallurgical plant and associated infrastructure would use rail to transport the material away from Olympic Dam rather than road to minimise truck movements. (DEIS 26.3.2)</p>	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Community interactions – (ID 5.1) Desalination plant	Should blasting be required for installation of intake pipes, it would be likely to involve approximately 15 land-based blasts every two to three days over a period of 40–60 days and approximately 25 underwater blasts every two days over a period of approximately 50 days. A maximum charge size of 10 kg would be used, and would involve sequential detonations to minimise potential air blast, overpressure and vibration impacts. Blasting would only occur during daylight hours, and would not occur on a Sunday or a public holiday. (DEIS 19.5.6)	MM
	During blasting activities, appropriate exclusion zones would be established to ensure public safety for people on land, and on or in the water. Estimated safety limits for land-based blasts would be approximately 300 m for people (where the maximum charge size would be 10 kg) and 100 m for unoccupied residences (or less, where the charge size would be adjusted to comply with noise and vibration limits). The safety exclusion zone for underwater blasting would be 1,350 m for people in the water and 70 m for a boat or other ship or vessel on the water. (DEIS 19.5.6)	MM
	In order to further reduce the impact of blasting on people and buildings at Point Lowly, BHP Billiton would: <ul style="list-style-type: none"> • provide advance notice of the blasting schedule to people in the Point Lowly area • place prominent signs on blasting days at the boat ramps at Point Lowly and Whyalla, and at the two dive shops in Whyalla • undertake surveillance of the blast area two hours prior to a blast, intensify water surveillance during blasting, and patrol upstream of the blast area to safeguard drift divers • monitor blast patterns to ensure compliance with the appropriate air blast and vibration criteria • keep accurate records describing the location of each blast and blast holes, the design of the blast in terms of explosives and initiating system usage, and ground vibration and air blast measurement data. (DEIS 19.5.6) 	MM
Community interactions – (ID 5.1) Port of Darwin	BHP Billiton would collaborate with the Darwin Port Corporation and relevant regulatory authorities and agencies to develop and implement a site specific security management plan. (DEIS 5.9.5)	MM
	Member of the public radiation dose would be maintained below applicable limits. (DEIS Appendix E4.10.2)	MM
Workplace interactions – (ID 5.2) Community health and safety	The existing heavy industrial area at Olympic Dam Village would be relocated as part of the proposed expansion. (DEIS 5.10.2)	MM
	To respond to medical incidents at Hiltaba Village, a qualified paramedic would be available 24 hours, seven days a week, with only serious medical emergencies expected to be referred to Roxby Downs Health Service or other medical services. The facilities manager at Hiltaba Village would also provide a first response to all medical and fire emergencies. In addition, the induction of workers would cover emergency response and evacuation procedures and a monitored fire alarm system would be incorporated into the village's central control system. (DEIS 19.5.4)	MM
	The workforce currently accommodated at Olympic Village would be relocated to Hiltaba Village and/or accommodation at Roxby Village during the pre-mine phase. (DEIS 5.10.2)	MM
	BHP Billiton proposes management initiatives in relation to workplace and living conditions including: <ul style="list-style-type: none"> • offering competitive remuneration and rewards • providing attractive and flexible career prospects • providing employee development opportunities, such as study cost reimbursement, conference attendance and in-house training • providing high quality living environments and workplace conditions • working with the community and government to improve amenities and facilities in Roxby Downs. (DEIS 19.5.1) 	MM

Table A3.1: Consolidated list of management measures and commitments (cont'd)

Issue/EM Program ID	Management measures and commitments	MM/MP/CM ¹
Workplace interactions – (ID 5.2) Community health and safety	BHP Billiton would comply with internationally accepted radiation limits for workers and the public and would set a goal of maintaining doses at less than 50% of the internationally acceptable limits. (DEIS 22.6.5)	MM
	A 'safety case' for the current operation is being conducted and would incorporate all components of the proposed expansion. This includes: <ul style="list-style-type: none"> • identifying the hazards and risks of the proposed expansion • describing how the risks are to be controlled • outlining the safety management system and its implementation • monitoring and review of effectiveness. (DEIS 22.5.2) 	MM
	A study would be undertaken to minimise impacts of fly-rock and to determine optimum distances for the characteristics of the mine rock. (DEIS 22.6.2)	MM
	All people entering the open pit would be required to have a proper induction, comply with internal and external regulations and wear appropriate high visibility PPE. Those on foot in the pit would be required to wear appropriate high visibility PPE and comply with communications protocols. (DEIS 22.6.2)	MM
	BHP Billiton to provide buses for travel between the construction site and accommodation areas and all work vehicles would conform with the relevant BHP Billiton vehicle standards, including the Fatal Risk Control Protocols. (DEIS 22.6.1)	MM
	Bulk storage facilities for hazardous materials would be designed and constructed according to applicable standards and legislation. (DEIS 22.6.8)	MM
	All contractors would be required to comply with standard procedures for hazardous substances to ensure that any construction material that arrived on the site was obtained, stored, used and disposed of in a safe and responsible manner. (DEIS 22.6.8)	MM
	Additional smelter ventilation would be installed to manage the gases generated through tapping the new blister tapholes on the eastern end of the furnaces. (DEIS 5.5.4, 26.3.2)	MM
	The gas cleaning systems in all smelter-based furnaces would be bypassed in the event of abnormal or emergency conditions that may adversely affect the health and safety of personnel. (DEIS 13.3.5)	MM
	In the brownfields expansion work, exclusion zones would be established and effective barriers would be installed to control risk from work at heights. (DEIS 26.3.2)	MM
	Install barrier along tailings cells and balance ponds' access roads to prevent vehicles from accidentally leaving the road. Provide tether points and harnesses for use by all operators in tailings cells and balance ponds areas. (DEIS 26.3.2)	MM
	Geotechnical studies would be conducted during the latter stages of operation to determine the potential for surface subsidence around the perimeter of the open pit and to identify a safety exclusion zone. (DEIS 23.8.1)	MM
	All workers would be trained in radiation protection measures and a site-wide safety culture promoted. (DEIS 22.6.5, Appendix E4.10.2)	MM

¹ Where 'MM' refers to Management measure, 'MP' to Monitoring measure and 'CM' to Contingency measure