



Qualitative Risk Assessment

for

DENDROBIUM MINE

Area 3A Mine Subsidence (Longwalls 6 -10)



Document No: AR0460 Analysis Date: 24th August 2007

Revision No: 4

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Section 1. Executive Summary

This analysis was commissioned by Cardno Forbes Rigby Pty Ltd to determine the risks associated with mining Area 3A (Longwalls 6-10) at Dendrobium Mine with the aim of developing the Subsidence Management Plan (SMP) for the mining of these longwalls by BHP Billiton Illawarra Coal.

This report details the methods used and the recommendations from the risk assessment which was conducted at BHPB CRM Office on August 24th of 2007.

Risk ranking was undertaken in accordance the BHP Billiton Enterprise Wide Risk Management (EWRM) Standard.

In accordance with the scope, high level risk issues were considered and recorded by the risk assessment team. The reader should refer to the sections regarding the Objectives, Scope and Assumption and Limitations of this risk assessment.

At the conclusion of the risk assessment the team assessed the Gross Exposure to those hazards believed to be the highest consequence to the organisation, these hazards and their ranking are identified within Section 8 of this report.

Attachment 2 (Analysis Worksheets) identifies all of the hazards, existing controls, risk rankings and any new treatment options and the responsibilities for their implementation.

Attachment 5 (Risk Treatment Schedule) provides the new treatment options and the people responsible for their implementation. In addition, a required date and sign off is also provided.

Attachment 3 and 4 (Risk Rank Order and Consequence Order) provides all of the identified hazards and treatment options in order of highest risk to lowest risk and from highest consequence to lowest consequence. The BHPB EWRM standard does not require these reports, however to provide compliance to the Department of Primary Industries MDG1010 and MDG1014 standards they are included.

Section 2. Analysis and Report

This Analysis was facilitated by:	Shane Chiddy
The Analysis took place:	24th August 2007
This Analysis has been verified by:	Bruce Blunden / Gary Brassington
The Verification occured:	29 August 2007
This Report has been compiled by:	Shane Chiddy
The Report was compiled:	24th August 2007

Section 3. Participants

The following people participated in the Analysis:

The following people	participated in the Analysis.	Relevant
<u>Participant</u>	Participant Role	Experience
Richard Walsh	BHPB Illawarra Coal Manager Approvals	26 Years
Gary Brassington	BHPB Illawarra Coal Manager Environment	15 Years
Bruce Blunden	BHPB Illawarra Coal Manager Environmental Approvals	15 Years
Adam West	BHPB Illawarra Coal Mining Approvals Co-ordinator	3 Years
James Reeves	Biosis Reserch Pty Ltd Archeologist	9 years
Rhidian Harrington	Biosis Reserch Pty Ltd Manager - Senior Ecologist	13 Years
Mathew Carden	Cardno Forbes Rigby Environmental Engineer	2 Years
Chris McEvoy	Cardno Forbes Rigby Manager Mining / Environmental Scientist	15 Years
Steve Short	Ecoengineers Director	34 Years
Andrew Leventhal	GHD Geotechnics Senior Principal Geotechnical Engineer	30 Years
James Barbato	Mine Subsidence Engineering Consultants (MSEC)	3 Years
Theresa Dye	The Ecology Lab Senior Environmental Scientist	22 Years
Doug Hazell	The Ecology Lab Senior Environmental Scientist	5 Years

Section 4. Purpose

In August of 2007 AXYS Consulting was commissioned to facilitate a risk assessment for Area 3A (Longwalls 6-10) at Dendrobium Mine Subsidence Management Plan (SMP) to consider the potential risk of impacts to Illawarra Coal and other key stakeholders.

This report details the methods used and the recommendations resulting from the risk assessment which was conducted at the BHPB CRM offices on August 24th of 2007.

Area 3A (Longwalls 6-10) at Dendrobium Mine will require the development and submission of a SMP, and as such this risk assessment is being performed to assist in the development of this SMP.

The aspects included in this SMP are the natural and built features required to be considered by the SMP Guidelines.

Residential houses are not situated within the area of this assessment.

Subsidence predictions have been completed for the application area and the subsidence model includes vertical and horizontal displacement predictions. The subsidence impact assessment report is due for finalisation by the end of September 2007.

Section 5. Objectives

The objectives of this assessment is to assist Dendrobium Mine in the identification and control of risks associated with Area 3A (Longwalls 6 to 10) subsidence in accordance with requirements from:

BHPB Policy and Standards;

State and Commonwealth Legislation;

Evaluate and record a formal risk assessment in accordance with the BHP Billiton EWRM Standard;

NSW Department of Primary Industries - Mineral Resources Guideline for application for Subsidence Management Approvals.

Section 6. Scope

The scope of this report is to identify subsidence risks from all potential sources for Area 3A (Longwalls 6-10) at Dendrobium Mine.

This risk assessment is to assist in the development of the SMP.

Areas for consideration include surface and sub-surface features as defined by Process Area List based on the NSW Department of Primary Industries - Mineral Resources Guideline for Application for Subsidence Management Approvals -Appendix B.

Specifically, this report is to assess the risks associated with mining Area 3A (Longwalls 6-10) at Dendrobium Mine with the aim of developing the SMP, in accordance with the BHP Billiton EWRM Standard in terms of;

- Health and Safety (HS);
- Estimated Shareholder Value / Material Damage / Financial Loss (FL);
- Project Net Present Value (NPV);
- Natural Environment (NE);
- Social / Cultural / Heritage (SC);
- Community / Government Reputation / Media (R);
- Legal (L).

Section 7. Assumptions

The following assumptions and limitations have been applied to this risk assessment:

1. Subsidence would generally be in accordance with predictions as identified in the MSEC report developed by Mine Subsidence Engineering Consultants.

2. Impact would be similar to those previously observed in comparable areas.

3. There may be isolated cases where subsidence will not occur as predicted. These cases will be taken into account in the MSEC report and the Impact Assessment and the SMP.

4. Rigorous monitoring can identify anomalous subsidence which can be used to manage impacts through strategies.

5. Surface features and land use remains substantially constant during the mining period.

6. BHPB IC will initiate consultation to identify any changes to surface infrastructure in the area that may be impacted.

- 7. Focus of this risk assessment is for the development of the SMP.
- 8. Risk evaluation is for the highest most likely impact on the risk being assessed.

Section 8. Gross Exposure

At the conclusion of the risk assessment the team assessed the Gross Exposure to those hazards believed to be the highest risk, these hazards are identified below.

Gross Exposure is defined as:

The total negative financial impact on BHP Billiton in respect of a specific Risk Issue, assuming that all active risk control measures are ineffective. Active risk control measures are those that have any reasonable possibility of failure and include any hedging or insurance contracts. It is equal to the sum of the Net Present Value lost plus the legal liability or compensation payments made and the opportunity costs.

In a health and safety context, the Gross Exposure could be the maximum credible number of fatalities likely to occur from the event being considered.

The Gross Exposure measure is independent of potential likelihood.

The items identified within the Gross Exposure assessment include.

1 - SMP not being approved Unable to proceed with Longwall production	Severity - 300
2 - Damage to TransGrid and Integral Electricity transmission lines due to mine subsidence. Loss of future approvals to operate mines result.	Severity - 30
 3 - Substantial loss of stored water from Cordeaux Reservoir due to mine subsidence. Loss of future approvals to operate mines result. 	Severity - 300
 4 - Irreparable widespread environmental impacts across entire 3A surface area. Loss of future approvals to operate mines result. 	Severity - 300

Section 9. Facilitator Qualifications

Shane Chiddy holds an Associate Diploma in Engineering (Electrical), is a Graduate Officer of the Institution of Engineers (Australia) and is a member of the Maintenance Engineering Society of Australia (MESA). He has also completed Conveyancing Law through Macquarie University and Establish the Risk Management Systems (Mine 7033 - G3) through Queensland University.

Prior to commencing his consulting career, Shane Chiddy qualified as an electrician and worked underground for 15 years. He then occupied a number of engineering roles within Rio Tinto, including such roles as electrical supervisor, Development Engineer and Senior Production Engineer. This latest role was responsible for the Longwall, underground diesel equipment and conveyors.

Additionally Shane Chiddy has been trained and accredited by John Moubray in the UK as a certified RCM II practitioner, and has conducted a number of extensive Reliability-centred Maintenance II analyses including underground and surface equipment such as Longwalls, Continuous Miners and conveying systems. He has facilitated RCM II analysis and delivered training in the mining, defence and telecommunications industries.

His consulting experience includes the application of Reliability-centred Maintenance II and extensive Risk Management and Project Management assignments. Shane is also experienced in software development and in the development and presentation of training packages.

Section 10. Sub-Systems Analysed:

SUB-SYSTEM			STEP IN PROCESS			
1	Natural Features	А	1.01 Catchment areas and declared Special Areas			
		В	1.02A Rivers and creeks (Sandy Creek, Wongawilli Creek)			
		С	1.02B Rivers and creeks (Tributaries)			
		D	1.03A Aquifers, known groundwater resources (for commercial extraction)			
		Е	1.03B Aquifers, known groundwater resources (for contribution to stored water)			
		F	1.04 Springs			
		G	1.05 Sea/Lake			
		н	1.06 Shorelines			
		Ι	1.07 Natural dams			
		J	1.08 Cliffs / pagodas			
		к	1.09 Steep slopes			
		L	1.10 Escarpments			
		М	1.11 Land prone to flooding or inundation			
		N	1.12 Swamps, wetlands, water related ecosystems			
		0	1.13 Threatened and protected species			
		Р	1.14 National Parks			
		Q	1.15 State Recreation Areas			
		R	1.16 State forests particularly areas zoned FMZ 1, 2 and 3			
		s	1.17 Natural vegetation			
		Т	1.18 Areas of significant geological interest			
		U	1.19 Any other feature considered significant			
2	Public Utilities	А	2.01 Railways			
		в	2.02 Roads (all types) and associated infrastructure			
		С	2.03 Bridges			
		D	2.04 Tunnels			
		Е	2.05 Culverts			
		F	2.06 Water/gas/sewerage pipelines			
		G	2.07 High pressure gas pipelines			
		н	2.08 Electricity transmission lines (overhead/underground) and associated plants			
		I	2.09 Telecommunication lines (overhead/underground) and associated plants			
		J	2.10 Water tanks, water and sewage treatment works			
		к	2.11 Dams, reservoirs and associated works			
		L	2.12 Air strips			
3	Public Amenities	A	3.01 Hospitals			
		В	3.02 Places of worship			

Section 10. Sub-Systems Analysed:

	SUB-SYSTEM	STEP IN PROCESS		
3	Public Amenities	с	3.03 Schools	
		D	3.04 Shopping centres	
		Е	3.05 Community centres	
		F	3.06 Office buildings	
		G	3.07 Swimming pools	
		н	3.08 Bowling greens	
		Ι	3.09 Ovals and cricket grounds	
		J	3.10 Race courses	
		к	3.11 Golf courses	
		L	3.12 Tennis courts	
		М	3.13 Any other amenities considered significant	
4	Farm Land and Facilities	А	4.01 Agricultural utilisation or agricultural suitability of farm land	
		В	4.02 Farm buildings / sheds	
		С	4.03 Gas and / or fuel storages	
		D	4.04 Poultry sheds	
		Е	4.05 Glass Houses	
		F	4.06 Hydroponic systems	
		G	4.07 Irrigation systems	
		н	4.08 Fences	
		I	4.09 Farm dams	
		J	4.10 Wells, bores	
		к	4.11 Any other feature considered significant	
5	Industrial, Commercial and Business Establishments	A	5.01 Factories	
		В	5.02 Workshops	
		С	5.03 Business or commercial establishments	
		D	5.04 Gas and / or fuel storages and associated plants	
		E	5.05 Waste storages and associated plants	
		F	5.06 Buildings, equipment and operations that are sensitive to surface movements	
		G	5.07 Surface mining (open cut) voids and rehabilitated areas	
		н	5.08 Mine infrastructure including tailings dams and emplacement areas	
		Ι	5.09 Any other feature considered significant	
6	Areas of Archaeological and/or Heritage significance	A	6.01 Areas of Archaeological and/or Heritage Significance	
7	Items of Architectural Significance	A	7.01 Items of Architectural Significance	
8	Permanent Survey Control Marks	A	8.01 Permanent Survey Control Marks	
9	Residential Establishments	A	9.01 Houses	

Section 10. Sub-Systems Analysed:

	SUB-SYSTEM		STEP IN PROCESS
9	Residential Establishments	в	9.02 Flats / Unit
		с	9.03 Caravan parks
		D	9.04 Retirement/aged care villages
		E	9.05 Associated structures such as workshops, garages, on-site waste water systems, water or gas tanks, swimming pools and tennis courts
		F	9.06 Any other feature considered significant

Definitions and Risk Ranking Methodology

Consequence

The size and nature of the impact from an event or occurrence.

Exposure

The frequency at which BHP Billiton could be exposed to consequences at the specified severity. These consequences may not manifest themselves, but there is a possibility they might.

Exposure factor

Is a measure of the frequency of occurrence of the risk issue during which BHP Billiton and/or its stakeholders could be exposed to consequences at the specified level of severity.

Hazard

A hazard is the intrinsic potential for an agent, activity or process to lead to an incident, or ongoing condition.

Environment note: The term 'hazard' is essentially equivalent to 'environmental aspect'.

Impact/Effect

Impacts are specific adverse effects resulting from an incident and may be related to people, the environment, plant or property, or a combination of these.

Incident (or ongoing condition)

An incident (or ongoing condition) is any occurrence that has the potential to result in adverse consequences to people, the environment, property/plant, or a combination of these.

Likelihood

The chance of occurrence per unit time (normally per year) In BHP Billiton this term will be used instead of "Frequency" because it helps the user think "is it likely?"

Frequency

The chance of occurrence per unit time (typically, per year).

Probability Factor

Represents the chance of consequences as the specified level of severity occurring when the risk issue occurs (i.e. during the Exposure).

Risk

Risk is defined as the likelihood of an impact on people, the environment, property, or a combination of these.

Risk Rating

The numerical rating applied to a risk calculated as the product of a severity factor, a probability factor, and an exposure factor.

Severity factor

Is a measure of the degree of consequences that are most likely to occur associated with a risk. Those consequences could either negatively impact BHP Billiton, its brand and its stakeholders or be the expected level of unrealised opportunity for gain that could be missed.

Risk Control Effectiveness (RCE)

The Risk Control Effectiveness (RCE) is defined as "the actual level of control that is currently present and effective, expressed as a percentage of that reasonably achievable for that particular risk issue" In practice there would always be some room for improvement in the completeness and/or effectiveness of the controls associated with a risk issue. Accordingly, a value of 100% should not normally be claimed for the Risk Control Effectiveness rating.

Description	RCE
"Just getting started" / "A lot of work still to be done"	20 – 30%
"About half way there"	50 - 60%
"Most things in pace and working, but some more still to be done"	75 – 80%
"Nothing more to be done except review and monitor the existing controls"	> 90%

EXPOSURE FACTOR

Choose a description that best fits the frequency of the "window of opportunity" during which impacts of the selected type and level of severity could be incurred (experienced) by BHP Billiton or its stakeholders, taking into account the existing controls.

Frequency of the "window of opportunity"	Factor
At least once per week	10
One a month or so	3
Once or twice a year	1
One or twice every 10 years	0.3
Once or twice in a 100 years	0.1

PROBABILITY FACTOR

Choose a description that best fits the chance of BHP Billiton or its stakeholders actually incurring (experiencing) impacts of the selected type and level of severity during a "window of opportunity", taking into account the existing controls.

Chances of the impact actually being incurred (experienced) during a "window of oportunity"	Factor
Happens often	10
Could easily happen	3
Could happen and has occurred here or elsewhere	1
Hasn't happened yet but could	0.3
Conceivable, but only in extreme circumstances	0.1

SEVERITY FACTOR

Choose a description that best fits the most likely degree harm, injury, loss or potential gain. Where there is more than one consequence type possible, look across the table and choose the highest level and corresponding Severity Factor. (Note: ESVA NPV and other terms are as defined in EWRM Standard No. 6)

Severity Level	Change in ESVA	Change in Project return (-NVP)	Health and Safety	Natural environment	Social / Cultural heritage	Community / Govt / Reputation / Media	Legal
1000	>US\$ 1B	>US\$ 5B	> 500 fatalities or very serious irreversible injury to 5000 persons.	Very significant impact on highly value species, habitat or eco system.	Irreparable damage to highly valued items of great cultural significance or complete breakdown of social order.	Prolonged international Condemnation.	Potential jail terms for executives and or very high fines for company. Prolonged, multiple litigation
300	US\$ 100M – US\$ 1B	US\$ 500M – US\$ 5B	>50 fatalities, or very serious irreversible injury to >500 persons	Significant impact on highly valued species, habitat, or ecosystem.	Irreparable damage to highly valued items of cultural significance or breakdown of social order.	International multi- NGO and media condemnation.	Very significant fines and prosecutions. Multiple litigation
100	US\$ 10M – US\$ 100M	US\$ 50M – US\$ 500M	Multiple fatalities, or significant irreversible effects to >50 persons	Very serious, long- term environmental impairment of ecosystem function	Very serious widespread social impacts Irreparable damage to highly valued items.	Serious public or media outcry (international coverage).	Significant prosecution and fines. Very serious litigation, including class actions.
30	US\$ 1M – 10M	US\$ 5M – 50M	Single fatality and/ or severe irreversible disability (> 30%) to one or more persons.	Serious medium term environmental effects.	On- going serious social issues. Significant damage to structures/ items of cultural significance.	Significant adverse national media/ public/ NGO attention.	Major breach of regulation. Major litigation.
10	US\$ 100, 000 - 1M	US\$ 500, 000 - 5M	Moderate irreversible disability or impairment (< 30%) to one or more persons.	Moderate, short- term effects but not affecting ecosystem function.	On going social issues. Permanent damage to items of cultural significants.	Attention from media and/ or heightened concern by local community. Criticism by NGOs	Serious breach of regulation with investigation or report to authority with prosecution and/ or moderate fine possible.
3	US\$ 10, 000 - \$100,000	US\$ 50, 000 - 500,000	Objective but reversible disability requiring hospitalisation	Minor effects on biological or physical environment.	Minor medium- term social impacts on local population. Mostly repairable.	Minor, adverse local public or media attention and complaints	Minor legal issues, non- compliances and breaches of regulation
1	<us\$ 000<="" 10,="" td=""><td><us\$ 000<="" 50,="" td=""><td>No medical treatment required</td><td>Limited damage to minimal area of low significance.</td><td>Low- level repairable damage to commonplace structures.</td><td>Public concern restricted to local complaints.</td><td>Low- level legal issue.</td></us\$></td></us\$>	<us\$ 000<="" 50,="" td=""><td>No medical treatment required</td><td>Limited damage to minimal area of low significance.</td><td>Low- level repairable damage to commonplace structures.</td><td>Public concern restricted to local complaints.</td><td>Low- level legal issue.</td></us\$>	No medical treatment required	Limited damage to minimal area of low significance.	Low- level repairable damage to commonplace structures.	Public concern restricted to local complaints.	Low- level legal issue.

PRIORITY GUIDE

Once a risk rating has been calculated, the following scheme should be used to assign priority of action. It should be noted that if action is not taken within the time specified, then the continued toleration of the residual 'downside' risk should be explicitly 'signed-off'. The suggested level of seniority for sign-off is as shown below.

Priority	Risk Rating	Suggested Action	Suggested Timing	Authority for continued toleration of residual risk
1	>300	Cessation until the residual risk is reduced to 300 or below – unless exposure is authorised as indicated.	Immediate	BHP Billiton CEO and Board
2	91 - 300	Take action to reduce residual risk to 90 or below	Short term Normally within 1 month	President CSG
3	31 - 90	Plan to deal with in keeping with business plan.	Medium term, Normally within 3 months	Presidents direct reports
4	11 - 30	Plan in keeping with all other priorities.	Normally within 1 year.	Manager
5	< 10	Low priority. Will still require attention	Ongoing control as part of managment system	Manager direct reports

The decision to tolerate a risk should be based on a consideration of:

- Whether the risk is being controlled to a level that is reasonably achievable,
- Whether it would be cost-effective to further control risk,
- The tolerability of the organisation (risk appetite) for risks of that type.

For decisions about HSEC Risks, the principles outlines in HSEC Toolkit No. T07 should be followed involving the application of the ALARP criteria given there.

Likelihood or Frequency /		Cc	onsequence Severi	ity	
Probability	Low	Minor	Moderate	Major	Critical
Almost Certain	High	High	Extreme	Extreme	Extreme
	100	300	1,000	3,000	10,000
Likely	Moderate	High	High	Extreme	Extreme
	30	90	300	900	3,000
Possible	Low	Moderate	High	Extreme	Extreme
	10	30	100	300	1,000
Unlikely	Low	Low	Moderate	High	Extreme
	3	9	30	90	300
Rare	Low	Low	Moderate	High	High
	1	3	10	30	100



Attachment 2 Analysis Worksheets

Qualitative AX	SYSTEM: De AR0460 Ard	drobium Mine I 3A Mine Subsidence (Longwalls 6 -1	10)	Compiled by:Shane ChiddyDate:24th August 2007	Sheet: 1
Risk Analysis. Analysis Worksheet	SUB SYSTEM: Na	ral Features		Verified by:Bruce Blunden / Gary BrDate:29 August 2007	of: 19
STEP IN PROCESS	CAUSE & IMPACT	EXISTING CONTROLS R	CE Sev Exp Pro	BRate TID TREATMENT OPTIONS RE	ESPONSIBLE
A 1.01 Catchment areas and declared Special Areas	1 SMP not approved. Non adherance to government requirements. SMP does not meet special area manageme requirements.	SMP process is in place 74 80 BHPB Environmental management system to ISO14001	75 - 30 1 1	30 1 Completed SMP and the monitoring programs (include audit of commitments) BHP Coal Envir	B Illawarra I - Manager ronment
	2 Non adherance to SMP and government requirements (breach of conditions and/or special area management requirements).	SMP process is in place 74 80 BHPB Environmental management system to ISO14001	75 - 30 1 0.3	9 1 Completed SMP and the monitoring programs (include audit of commitments) BHP Coal Envir	B Illawarra I - Manager ronment
B 1.02A Rivers and creeks (Sandy Creek, Wongawilli Creek)	 Water flow and quality chang fracturing of river bed and roc bars to creeks due to mine subsidence. Flow on environmental impacts result. 	,Monitoring programs in place for Area 3A74 80Remediation techniques have been developed for creeks80Subsidence predictions have been developed80Mine layout minimises subsidence impact80	75 - 10 1 1	10 1 Completed SMP to include consideration of Sandy and Wongawilli Creeks and the monitoring programs BHPI Coal Envir	B Illawarra I - Manager ronment
C 1.02B Rivers and creeks (Tributaries)	1 Water flow and quality chang over the catchment area, fracturing of creek bed and ro bars to creeks due to mine subsidence. Large flow on environmental impacts result over the wide area.	Monitoring programs in place for Area 3A Remediation techniques have been developed for creeks Subsidence predictions have been developed	75 - 10 1 1	10 1 Completed SMP to include consideration of tributaries and the monitoring programs BHPI Coal Envir	B Illawarra I - Manager ronment
D 1.03A Aquifers, known groundwater resources (for commercial extraction)	1 Ground water level and qualit changes due to mine subsidence.	No use of groundwater resource in the area for commercial extraction Monitoring programs in place for Area 3A	75 - 1 1 0.1	0 1 Completed SMP to include consideration of aquifers and the monitoring programs Envir	B Illawarra I - Manager ronment

C	Qualitative AX	~	SYSTEM:DendroAR0460Area 3	bbium Mine A Mine Subsidence (Longwalls	6 -10)				Co Dat	mpi te:	led by: Shane Chiddy 24th August 2007		Sheet:	2
F A	Analysis Worksheet	ING	SUB SYSTEM: Natura No: 1	I Features					Ver Dat	rifie te:	d by: Bruce Blunden / Gar 29 August 2007	/ Br	of:	19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	ESPONS	SIBLE
				SCA have not identified a commercial ground water resource in the area during recent investigations										
E	 1.03B Aquifers, known groundwater resources (for contribution to stored water) 	1	Contribution of shallow ground water resource to catchment vield. Ground water level and	Monitoring programs in place for Area 3A	75 - 80%	3	1	1	3	1	Completed SMP to include consideration of aquifers and the monitoring programs	BHF Coa Envi	B Illawarra - Manage ronment	a r
			quality changes due to mine subsidence.	Moderate depth of cover, reduced possibility of shallow aquifers flowing to mine workings or deep storage										
				Presence of aquicludes and aquitards within the stratigraphic sequence.										
				Dams Safety Committee (DSC) Management Plans										
F	[:] 1.04 Springs	1	Enhancement or development of spring flow resulting in water quality changes due to mine	Subsidence predictions have been developed	75-80%	3	1	3	9	1	Completed SMP and the monitoring programs (include audit of commitments)	BHF Coa Envi	B Illawarra - Manage ronment	a r
			subsidence. Flow on environmental impacts result.	Monitoring programs in place for Area 3A No recognised springs in Area										
				3A										
G	6 1.05 Sea/Lake	1	The area of subsidence under analysis does not include any seas or lakes and did not require further assessment.											
F	I 1.06 Shorelines	1	The area of subsidence under analysis does not include any shorelines and did not require further assessment. (River shorelines are considered within the Rivers 1.02)											

Qualitative AX	SYSTEM:DendaAR0460Area 3	robium Mine 3A Mine Subsidence (Longwalls 6	6 -10)	Compi Date:	led by: Shane Chiddy 24th August 2007	Sheet: 3
Analysis Worksheet	SUB SYSTEM: Natura No: 1	al Features		Verifie Date:	d by: Bruce Blunden / Gary 29 August 2007	^{Br} of: 19
STEP IN PROCESS	CAUSE & IMPACT	EXISTING CONTROLS	RCE Sev Exp Pro	ob Rate TID	TREATMENT OPTIONS	RESPONSIBLE
I 1.07 Natural dams	1 The area of subsidence under analysis does not include any natural dams and did not require further assessment.					
J 1.08 Cliffs / pagodas	 Rock falls from cliffs due to mine subsidence. Rock fall causes localised damage to environment. (Note: There were no pagodas identified in the area) 	Base line assessment has been completed, cliffs are at known locations Monitoring programs in place Subsidence predictions have been developed	75-80% 1 1 3	3 1	Completed SMP and the monitoring programs (include audit of commitments)	BHPB Illawarra Coal - Manager Environment
	2 Rock falls from cliffs due to mine subsidence. Rock fall causes injury to personnel. (Note: There were no pagodas identified in the area)	Base line assessment has been completed, cliffs are at known locations Monitoring programs in place Subsidence predictions have been developed Crown land not accessible by the public	75-80% 10 1 0.4	1 1 1	Completed SMP to include Public Safety and the monitoring programs	BHPB Illawarra Coal - Manager Environment
K 1.09 Steep slopes	1 Mass movement of steep slopes due to mine subsidence. Localised damage to environment.	Base line assessment has been completed, steep slopes are at known locations Past mining has not lead to any significant mass downhill earth movements of steep slopes in the area. Subsidence predictions have been developed Limited development of colluvium Landscape impact assessment and monitoring programs	75 - 1 1 0.1	1 0 1	Completed SMP and the monitoring programs	BHPB Illawarra Coal - Manager Environment

Qualitative AX Risk Analysis.				SYSTEM:DendraAR0460Area 3	obium Mine A Mine Subsidence (Longwalls	6 -10)				Co Dat	mpi te:	led by: Shane Chiddy 24th August 2007		Sheet: 4
	Ana	Ilysis Worksheet	TING	SUB SYSTEM: Natura No: 1	al Features					Ver Dat	ifie te:	d by: Bruce Blunden / Gar 29 August 2007	y Br	of: 19
		STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	ESPONSIBLE
			2	Surface cracking along steep slopes due to mine subsidence. Localised damage to environment and enhancment of erosion and sedimentation.	Base line assessment has been completed, steep slopes are at known locations Subsidence predictions have been developed Remediation techniques are available if required Limited runoff catchment Landscape impact assessment and monitoring programs	75 - 80%	1	1	1	1	1	Completed SMP and the monitoring programs	BHF Coa Env	PB Illawarra I - Manager ironment
	L 1	.10 Escarpments	1	The area of subsidence under analysis does not include any escarpments and did not require further assessment.										
	M 1 ir	.11 Land prone to flooding or nundation	1	The area of subsidence under analysis does not include any land prone to flooding or inundation and did not require further assessment. (See River 1.02 and swamps 1.12)										
	N 1	.12 Swamps, wetlands, water elated ecosystems	1	Change in swamp function, environmental damage to swamps, wetlands, water related ecosystems sites due to mine subsidence.	Monitoring programs in place for Area 3A Base line assessment has been completed, swamps, their locations and their functions are known. Subsidence predictions have been developed	75 - 80%	10	1	1	10	1	Completed SMP to include swamps, wetlands, water related ecosystems and the monitoring programs	BHF Coa Env	PB Illawarra I - Manager ironment
	0 1	.13 Threatened and protected	1	Mine subsidence leads to loss	Base line assessment has	75-80%	10	1	1	10	1	Completed SMP to include consideration of Threatened and	BHF Coa	PB Illawarra Il - Manager

Qualitative Risk Analysis.			SYSTEM:DendroAR0460Area 3	bbium Mine A Mine Subsidence (Longwalls (6 -10)				Cor Dat	npil e:	ed by: Shane Chiddy 24th August 2007		Sheet:	5
к А	analysis Worksheet	THE	SUB SYSTEM: Natura No: 1	l Features					Ver Dat	ified e:	by: Bruce Blunden / Gary 29 August 2007	' Br	of:	19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	ESPONS	IBLE
	species	o	of listed species or their habitat.	been completed, known species within the area Monitoring programs in place							protected species and the monitoring programs	Envi	ronment	
				Past mining has not lead to significant impacts on threatened and protected species in Dendrobium Area 1 or 2										
				Subsidence predictions have been developed										
				MIne plan has been designed to minimise the impacts to Sandy and Wongawilli Creeks										
				Surface and ground water impact assessments										
				Development consent for Dendrobium										
				Environemtnal Protection and Biodiversity Conservation Act (EPBC) approval										
F	9 1.14 National Parks	1 T a N re	The area of subsidence under analysis does not include any National Parks and did not equire further assessment.											
c	1.15 State Recreation Areas	1 T a S n	The area of subsidence under analysis does not include any State Recreation Areas and did not require further assessment.											
R	1.16 State forests particularly areas zoned FMZ 1, 2 and 3	1 T a S z n	The area of subsidence under analysis does not include any State forests particularly areas coned FMZ 1, 2 and 3 and did not require further assessment.											

Q	ualitative	AX	SYSTEM:DendrAR0460Area 3	obium Mine BA Mine Subsidence (Longwalls	6 -10)				Co Dat	mpil :e:	led by: Shane Chiddy 24th August 2007		Sheet:	6
R A	isk Analysis. nalysis Worksheet	CONSULTINO	SUB SYSTEM: Natura No: 1	al Features					Ver Dat	ified e:	d by: Bruce Blunden / Gary 29 August 2007	/ Br	of:	19
	STEP IN PROCES	S	CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	SPON	SIBLE
s	1.17 Natural vegetation	1	Mine subsidence leads to damage or loss of natural vegetation.	Base line assessment has been completed, natural vegetation is at known locations	75-80%	1	1	0.3	0	1	Completed SMP to include consideration of natural vegetation and the monitoring programs	BHP Coal Envi	B Illawarra - Manage ronment	a r
				Monitoring programs in place										
				Past mining has not lead to any significant impacts on natural vegetation										
				Subsidence predictions have been developed										
Т	1.18 Areas of significant geological interest	1	The area of subsidence under analysis does not include any areas of significant geological interest and did not require further assessment.											
U	1.19 Any other feature considered significant	1	The area of subsidence under analysis does not include any other feature considered significant and did not require further assessment.											

Q	ualitative AX	2	SYSTEM:DendroAR0460Area 3	obium Mine A Mine Subsidence (Longwalls	6 -10)				Co Dat	mpi :e:	led by: Shane Chiddy 24th August 2007		Sheet: 7
A	nalysis Worksheet	ING	SUB SYSTEM: Public No: 2	Utilities					Ver Dat	ifie e:	d by: Bruce Blunden / Gary 29 August 2007	/ Br	of: 19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	ESPONSIBLE
A	2.01 Railways	1	The area of subsidence under analysis does not include any railways and did not require further assessment.										
В	2.02 Roads (all types) and associated infrastructure	1	Damage to fire roads due to mine subsidence. Roads require repair.	Monitoring programs in place for Area 3A Subsidence predictions have been developed Road Management Plan agreed with SCA No public/private roads within Area 3A No sealed roads within Area 3A	50-60%	1	1	1	1	1	Completed SMP to include consideration of roads and the monitoring programs. Revise management of SCA roads to include Area 3A	BHF Coa BHF Coa	PB Illawarra I - Manager R&I PB Illawarra I - Manager R&I
c	2.03 Bridges	1	Damage to bridges due to mine subsidence. Bridges will require repair.	Subsidence predictions have been developed Bridge design and construction	>90%	1	1	0.1	0	1	None Identified		
D	2.04 Tunnels	1	The area of subsidence under analysis does not include any tunnels and did not require further assessment.										
E	2.05 Culverts	1	The area of subsidence under analysis does not include any culverts and did not require further assessment.										
F	2.06 Water/gas/sewerage pipelines	1	The area of subsidence under analysis does not include any water/gas/sewerage pipelines and did not require further assessment.										

Qu	alitative AX	-	SYSTEM:DendroAR0460Area 3	bbium Mine A Mine Subsidence (Longwalls (6 -10)				Co Da	mpi te:	iled by: Shane Chiddy 24th August 2007	Sheet: 8
Ana	alysis Worksheet	ING	SUB SYSTEM: Public No: 2	Utilities					Ve Da	rifie te:	d by: Bruce Blunden / Gary 29 August 2007	^{/ Br} of: 19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Pro	bRat	e TID	TREATMENT OPTIONS	RESPONSIBLE
G	2.07 High pressure gas pipelines	1	The area of subsidence under analysis does not include any high pressure gas pipelines and did not require further assessment.									
	2.08 Electricity transmission ines (overhead/underground) and associated plants	1	Damage to TransGrid and Integral Electricity transmission lines due to mine subsidence. Electricity transmission lines	Subsidence predictions have been developed Monitoring programs in place TransGrid and Integral	50-60%	1	1	0.3	8 0	1	Completed SMP to include consideration of the TransGrid and Integral Electricity transmission lines and the monitoring programs	BHPB Illawarra Coal - Manager Environment
			requires repair. (Includes 330kV, 33kV)	Previous experience with						2	Asset owners to develop internal impact assessments	BHPB Illawarra Coal - Manager R&I
				mining under power lines						3	Revise the Integral Management Plan to include Area 3A	BHPB Illawarra Coal - Manager R&I
										4	Develop a Management Plan with	BHPB Illawarra Coal - Manager R&I
										5	Revise the asset protection plan to include Area 3A	BHPB Illawarra Coal - Manager R&I
	2.09 Telecommunication lines (overhead/underground) and associated plants	1	The area of subsidence under analysis does not include any telecommunication lines and did not require further assessment.									
J	2.10 Water tanks, water and sewage treatment works	1	The area of subsidence under analysis does not include any water tanks, water and sewage treatment works and did not require further assessment.									
K	2.11 Dams, reservoirs and associated works	1	Damage to Cordeaux and Upper Cordeaux No 2 Dam due to mine subsidence. Dams will require repair.	Subsidence predictions have been developed	75 - 80%	1	1	0.1	0	1	Completed SMP to include consideration of Cordeaux and Upper Cordeaux No 2 Dams	BHPB Illawarra Coal - Manager Environment
		2	Unacceptable loss of stored water from Cordeaux Reservoir	Subsidence predictions have been developed	50-60%	10	1	0.3	3	1	Completed SMP to include consideration of Cordeaux Reservoir	BHPB Illawarra Coal - Manager Environment

Qualitative AX	SYSTEM: Dendr AR0460 Area 3	obium Mine 3A Mine Subsidence (Longwalls 6	6 -10)	Compiled by:Shane ChiddyDate:24th August 2007	Sheet: 9
Analysis Worksheet	SUB SYSTEM: Public No: 2	Utilities		Verified by:Bruce Blunden / CDate:29 August 2007	Bary Br of: 19
STEP IN PROCESS	CAUSE & IMPACT	EXISTING CONTROLS	RCE Sev Exp Pro	b Rate TID TREATMENT OPTION	8 RESPONSIBLE
STEP IN PROCESS L 2.12 Air strips	NO. 2 CAUSE & IMPACT due to mine subsidence. Reservoir will require repair. 1 The area of subsidence under analysis does not include any air strips and did not require further assessment.	EXISTING CONTROLS Mine layout minimises subsidence impact No reservoir water reporting to Dendrobium Area 1 or 2	RCE Sev Exp Pro	borner 29 August 2007 bb Rate TID 2 Dams Safety Committee (DSC) approval required to mine within the notification area of Cordeau Reservoir	S RESPONSIBLE BHPB Illawarra Coal - Manager Approvals

C	ualita	ative	AX	0	SYSTEM: AR0460	Dendro Area 3/	bium Mine A Mine Subsidence (Longwalls	; 6 -10)				Con Date	npil e:	ed by:	Shane Chiddy 24th August 2007		Sheet:	10
A	lisk A Inalys	nalysis. is Worksheet	COMMENTING	ō	SUB SYSTEM: No: 3	Public /	Amenities					Veri Date	ifiec e:	l by:	Bruce Blunden / Gary 29 August 2007	' Br	of:	19
	5		SS	(CAUSE & IMPAC	т	EXISTING CONTROLS	RCE	Sev	Ехр	Prob	Rate	TID	TREA	TMENT OPTIONS	R	ESPONS	IBLE
A	3.01	Hospitals	1	1 The ana Hos furt	e area of subsidence alysis does not include spitals and did not rec ther assessment.	under e any quire												
B	3.02	Places of worship	1	1 The ana Plao requ	e area of subsidence alysis does not include aces of worship and di quire further assessme	under e any d not ent.												
C	3.03	Schools	1	1 The ana Sch furti	e area of subsidence alysis does not include hools and did not requ ther assessment.	under e any iire												
	3.04	Shopping centres	1	1 The ana Sho requ	e area of subsidence alysis does not include opping centres and di quire further assessme	under e any d not ent.												
E	3.05	Community centres	: 1	1 The ana Cor requ	e area of subsidence alysis does not include mmunity centres and quire further assessme	under e any did not ent.												
F	3.06	Office buildings	1	1 The ana Offi requ	e area of subsidence alysis does not include fice buildings and did i quire further assessme	under e any not ent.												
G	3.07	Swimming pools	1	1 The ana Swi requ	e area of subsidence alysis does not include /imming pools and did quire further assessme	under e any not ent.												
H	1 3.08	Bowling greens	1	1 The ana Bov	e area of subsidence alysis does not include wling greens and did r	under e any not												

C	ualitative <u>AX</u>	~	SYSTEM:DendroAR0460Area 3/4	bium Mine A Mine Subsidence (Longwalls 6	6 -10)				Cor Dat	npil e:	ed by: Shane Chiddy 24th August 2007	Sheet: 11
Þ	analysis Worksheet	IND	SUB SYSTEM: Public / No: 3	Amenities					Ver Dat	ifiec e:	d by: Bruce Blunden / Gary B 29 August 2007	of: 19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Ехр	Prob	Rate	TID	TREATMENT OPTIONS	RESPONSIBLE
1	3.09 Ovals and cricket grounds	1	require further assessment. The area of subsidence under analysis does not include any Ovals and cricket grounds and did not require further assessment.									
J	3.10 Race courses	1	The area of subsidence under analysis does not include any Race courses and did not require further assessment.									
k	3.11 Golf courses	1	The area of subsidence under analysis does not include any Golf courses and did not require further assessment.									
L	. 3.12 Tennis courts	1	The area of subsidence under analysis does not include any Tennis courts and did not require further assessment.									
N	1 3.13 Any other amenities considered significant	1	No other public amenities were Identified									

Qı	Qualitative Risk Analysis. Analysis Worksheet		Y	SYSTEM:DendrAR0460Area 3	obium Mine A Mine Subsidence (Longwalls 6	6 -10)				Cor Dat	mpil :e:	led by:	Shane Chiddy 24th August 2007	Sh	eet: 1	2
An	sk Analy Nalysis V	ysis. Worksheet	S TING	SUB SYSTEM: Farm No: 4	Land and Facilities					Ver Dat	ifiec :e:	d by:	Bruce Blunden / Gary 29 August 2007	Br of:	1	9
	STE	P IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREAT	MENT OPTIONS	RESP	ONSIBI	LE
A	4.01 Ag agricultur	ricultural utilisation or ral suitability of farm land	1	The area of subsidence under analysis does not include any agricultural utilisation and did not require further assessment.												
В	4.02 Fa	rm buildings / sheds	1	The area of subsidence under analysis does not include any farm buildings / sheds and did not require further assessment.												
С	4.03 Ga	is and / or fuel storages	1	The area of subsidence under analysis does not include any Gas and / or fuel storages and did not require further assessment.												
D	4.04 Po	ultry sheds	1	The area of subsidence under analysis does not include any Poultry sheds and did not require further assessment.												
E	4.05 Gla	ass Houses	1	The area of subsidence under analysis does not include any Glass Houses and did not require further assessment.												
F	4.06 Hy	droponic systems	1	The area of subsidence under analysis does not include any Hydroponic systems and did not require further assessment.												
G	4.07 Irri	gation systems	1	The area of subsidence under analysis does not include any Irrigation systems and did not require further assessment.												
н	4.08 Fe	nces	1	The area of subsidence under analysis does not include any												

Q	ualitative	AXY	AR0460 Area 3	A Mine Subsidence (Longwalls 6	6 -10)			Co Da	mpi te:	led by: Shane Chiddy 24th August 2007	Sheet: 13
A	isk Analysis. nalysis Worksheet	COMBULTING	SUB SYSTEM: Farm L No: 4	and and Facilities				Ve Da	rified te:	d by: Bruce Blunden / Gary 29 August 2007	Br of: 19
	STEP IN PROCES	S	CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev E	Exp P	rob Rat	e TID	TREATMENT OPTIONS	RESPONSIBLE
			fences and did not require further assessment.								
	4.09 Farm dams	1	The area of subsidence under analysis does not include any farm dams and did not require further assessment.								
J	4.10 Wells, bores	1	The area of subsidence under analysis does not include any wells and bores and did not require further assessment.								
ĸ	4.11 Any other feature considered significant	1	No other Farm Land and Facilities were Identified								

Q	ualitative AX	-	SYSTEM:DendroAR0460Area 3/4	bium Mine A Mine Subsidence (Longwalls 6	6 -10)				Con Date	npil e:	ed by:	Shane Chiddy 24th August 2007		Sheet:	14
R A	isk Analysis. nalysis Worksheet	ING	SUB SYSTEM: Industri No: 5	al, Commercial and Business E	stablis	hme	ents		Veri Date	ifiec e:	l by:	Bruce Blunden / Gary 29 August 2007	Br	of:	19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREA	TMENT OPTIONS	R	ESPONS	IBLE
A	5.01 Factories	1	The area of subsidence under analysis does not include any Factories and did not require further assessment.												
В	5.02 Workshops	1	The area of subsidence under analysis does not include any Workshops and did not require further assessment.												
с	5.03 Business or commercial establishments	1	The area of subsidence under analysis does not include any Business or commercial establishments and did not require further assessment.												
D	5.04 Gas and / or fuel storages and associated plants	1	The area of subsidence under analysis does not include any Gas and / or fuel storages and associated plants and did not require further assessment.												
E	5.05 Waste storages and associated plants	1	The area of subsidence under analysis does not include any Waste storages and associated plants and did not require further assessment.												
F	5.06 Buildings, equipment and operations that are sensitive to surface movements	1	The area of subsidence under analysis does not include any Buildings, equipment and operations that are sensitive to surface movements and did not require further assessment.												
G	5.07 Surface mining (open cut) voids and rehabilitated areas	1	The area of subsidence under analysis does not include any Surface mining (open cut) voids and rehabilitated areas and did												

Qı	alitative	IX	SYSTEM:DendroAR0460Area 3/	bbium Mine A Mine Subsidence (Longwalls	6 -10)				Con Date	npi e:	led by: Shane Chiddy 24th August 2007		Sheet: 15
RI: An	sk Analysis. alysis Worksheet 🛛 📷	S	SUB SYSTEM: Industr No: 5	ial, Commercial and Business E	stablis	hme	ents		Veri Date	ified e:	d by: Bruce Blunden / Gar 29 August 2007	,∕ Br	of: 19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	R	ESPONSIBLE
н	5.08 Mine infrastructure including tailings dams and emplacement areas	n 1 D h R	not require further assessment. Damage to exploration bore noles due to mine subsidence. Resulting in the release of gas	Assessment completed of seam and overburden gas	50-60%	3	1	1	3	1	Completed SMP to include consideration of exploration bore holes and associated equipment	BHF Coa Env	PB Illawarra Il - Manager ironment
		o	or water to the surface or water enters deep storage.	Subsidence predictions have been developed							and the monitoring programs		
1	5.09 Any other feature considered significant	1 N a w	No other Industrial, Commercial and Business Establishments vere Identified										

Q	ualitative <u>AX</u>	Y	SYSTEM:DendroAR0460Area 3	bbium Mine A Mine Subsidence (Longwalls	6 -10)				Coi Dat	mpi :e:	led by: Shane Chiddy 24th August 2007		Sheet:	16
A	isk Analysis. nalysis Worksheet	S TINO	SUB SYSTEM: Areas No: 6	of Archaeological and/or Heritag	je sign	ifica	nce		Ver Dat	ifie e:	d by: Bruce Blunden / Gary 29 August 2007	/ Br	of:	19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATMENT OPTIONS	RE	SPONS	IBLE
A	6.01 Areas of Archaeological and/or Heritage Significance	1	Damage to Archaeological Significant sites due to mine subsidence.	Base line assessment has been completed, known sites within the area	50-60%	3	1	0.3	1	1	Completed SMP to include consideration of Areas of Archaeological Significance and the monitoring programs	BHPE Coal Envir	B Illawarra - Manager onment	
				been developed						2	Obtain consent under the National Parks and Wildlife Act 1974 - Section 90 (prior to the mining of Longwall 6)	BHPE Coal Envir	3 Illawarra - Manager onment	
		2	Damage to Heritage Significant sites due to mine subsidence.	Heritage search completed, no known sites within the area	75-80%	1	1	0.1	0	1	Completed SMP to include consideration of Areas of Heritage Significance and the monitoring	BHPE Coal Envir	3 Illawarra - Manager onment	
				Subsidence predictions have been developed							programs (include base line assessment of Heritage Significant sites within the area)			

Qualitative AX	SYSTEM:DendroAR0460Area 3	obium Mine A Mine Subsidence (Longwalls 6	-10)	Compiled by: Date:	Shane Chiddy 24th August 2007	Sheet: 17
Analysis Worksheet	SUB SYSTEM: Items of No: 7	of Architectural Significance		Verified by: Date:	Bruce Blunden / Gary Br 29 August 2007	of: 19
STEP IN PROCESS	CAUSE & IMPACT	EXISTING CONTROLS	RCE Sev Exp Pro	b Rate TID TREA		RESPONSIBLE
A 7.01 Items of Architectural Significance	1 The area of subsidence under analysis does not include any Items of Architectural Significance and did not require further assessment.					

Qualitative AX	SYSTEM:DendrAR0460Area 3	obium Mine 3A Mine Subsidence (Longwalls	6 -10)	Compiled by Date:	y: Shane Chiddy 24th August 2007	Sheet: 18
Analysis Worksheet	SUB SYSTEM: Perma	anent Survey Control Marks		Verified by: Date:	Bruce Blunden / Gary 29 August 2007	Br of: 19
STEP IN PROCESS	CAUSE & IMPACT	EXISTING CONTROLS	RCE Sev Exp Pro	b Rate TID TR	REATMENT OPTIONS	RESPONSIBLE
A 8.01 Permanent Survey Control Marks	1 Movement of Permanent Survey Control Marks due to mine subsidence. Surveyors rely on false location of the marks.	NSW Department of Lands are advised of affected survey control marks Subsidence predictions have been developed Base line assessment has been completed, known sites of the survey control marks within the area	75-80% 1 1 0.3	3 0 1 Comp consid Surve monite	pleted SMP to include ideration of Permanent ay Control Marks and the toring programs	BHPB Illawarra Coal - Manager R&I

Q	ualitative AX	-	SYSTEM:DendroAR0460Area 34	bium Mine A Mine Subsidence (Longwalls 6	6 -10)				Cor Dat	npil e:	ed by: Sh 241	ane Chiddy h August 2007	Sheet	19
R A	isk Analysis. nalysis Worksheet	ING	SUB SYSTEM: Resider No: 9	ntial Establishments					Ver Dat	ifiec e:	1 by: Bru 29	uce Blunden / Gary E August 2007	^{3r} of:	19
	STEP IN PROCESS		CAUSE & IMPACT	EXISTING CONTROLS	RCE	Sev	Exp	Prob	Rate	TID	TREATME	INT OPTIONS	RESPON	SIBLE
A	9.01 Houses	1 T a ru ru	The area of subsidence under analysis does not include any residential houses and did not require further assessment.											
В	9.02 Flats / Unit	1 T a F fr fl c	The area of subsidence under analysis does not include any Flats / Units and did not require further assessment. (Granny flats were assumed to be covered under Houses 9.01)											
с	9.03 Caravan parks	1 T a C r	The area of subsidence under analysis does not include any Caravan parks and did not require further assessment.											
D	9.04 Retirement/aged care villages	1 T a F a a	The area of subsidence under analysis does not include any Retirement/aged care villages and did not require further assessment.											
E	9.05 Associated structures such as workshops, garages, on-site waste water systems, water or gas tanks, swimming pools and tennis courts	1 T a v v g fı	The area of subsidence under analysis does not include any associated structures such as workshops, garages, on-site waste water systems, water or gas tanks and did not require further assessment.											
F	9.06 Any other feature considered significant	1 N E Id	No other Residential Establishments features were Identified											

Risk Treatment Schedule (Risk Rank Order)

Qual Risk	itativ Treat	e Risk Analysis ment Schedule	ANALYSIS NUMBER:	AN De	IALYSIS SITE AND NAME	AX	Sheet:	1
Risk	Rank	Order	AR0460	Are	ea 3A Mine Subsidence (Longwalls 6 -10)	CONSULTING	of:	2
Ref	Risk	Haza	rd	TID	Treatment Optio	ons		
1A1	30	SMP not approved. N to government requir does not meet specia management require	Non adherance ements. SMP al area ments.	1	Completed SMP and the monitoring programs (i	nclude audit of cc	ommitment	ts)
1B1	10	Water flow and qualit fracturing of river been to creeks due to mine Flow on environment result.	ty changes, d and rock bars e subsidence. al impacts	1	Completed SMP to include consideration of Sar the monitoring programs	dy and Wongawil	li Creeks a	and
1C1	10	Water flow and qualit over the catchment a of creek bed and roc creeks due to mine s Large flow on enviror impacts result over th	ty changes area, fracturing k bars to ubsidence. nmental ne wide area.	1	Completed SMP to include consideration of tribu programs	utaries and the mo	onitoring	
1N1	10	Change in swamp fu environmental dama wetlands, water relat sites due to mine sub	nction, ge to swamps, ed ecosystems osidence.	1	Completed SMP to include swamps, wetlands, wet	vater related ecos	ystems ar	nd
101	10	Mine subsidence lea	ds to loss of r habitat.	1	Completed SMP to include consideration of Thread and the monitoring programs	eatened and prote	cted spec	ies
1A2	9	Non adherance to SM government requirem of conditions and/or s management require	MP and nents (breach special area ments).	1	Completed SMP and the monitoring programs (i	nclude audit of co	ommitment	ts)
1F1	9	Enhancement or dev spring flow resulting changes due to mine Flow on environment result.	elopment of in water quality e subsidence. al impacts	1	Completed SMP and the monitoring programs (i	nclude audit of co	mmitmen	ts)
1E1	3	Contribution of shallo water resource to cat Ground water level a changes due to mine	ow ground tchment yield. nd quality subsidence.	1	Completed SMP to include consideration of aqu programs	ifers and the mon	itoring	
1J1	3	Rock falls from cliffs subsidence. Rock fa localised damage to (Note: There were no identified in the area)	due to mine Il causes environment. pagodas	1	Completed SMP and the monitoring programs (i	nclude audit of co	mmitment	ts)
2K2	3	Unacceptable loss of	stored water	1	Completed SMP to include consideration of Cor	deaux Reservoir		
		mine subsidence. Rerequire repair.	eservoir will	2	Dams Safety Committee (DSC) approval require notification area of Cordeaux Reservoir	ed to mine within t	he	
5H1	3	Damage to exploration due to mine subsider in the release of gas surface or water enter storage.	on bore holes nce. Resulting or water to the ers deep	1	Completed SMP to include consideration of exp associated equipment and the monitoring progra	loration bore hole: ams	s and	
1J2	1	surface or water enters deep storage. Rock falls from cliffs due to mine subsidence. Rock fall causes injur to personnel. (Note: There were no pagodas identified in the area)		1	Completed SMP to include Public Safety and th	e monitoring prog	rams	
1K2	1 Surface cracking along steep slopes due to mine subsidence. Localised damage to environment and enhancment of erosion and sedimentation.			1	Completed SMP and the monitoring programs			
2B1	2B1 1 Damage to fire roads due to mine subsidence. Roads require repair.			1	Completed SMP to include consideration of road programs.	ds and the monito	ring	
				2	Revise management of SCA roads to include A	rea 3A		
6A1	1	Damage to Archaeol Significant sites due subsidence.	ogical to mine	1	Completed SMP to include consideration of Are. Significance and the monitoring programs	as of Archaeologi	cal	

Qua Risk	litativ Treat	e Risk Analysis ment Schedule	ANALYSIS NUMBER:	AN De	NALYSIS SITE AND NAME	AX	Sheet:	2			
Rick	Rank	Order	AR0460	Ar	ea 3A Mine Subsidence (Longwalls 6 -10)	Š	of:	2			
Rof	Rick	Haza	ard	тір	Trootmont Onti	CONSULTING					
Rei	RISK	Пага	ara	2	Obtain consent under the National Parks and W	/ildlife Act 1974 - 9	Section 90				
1D1		Ground water level a	nd quality	1	(prior to the mining of Longwall 6) Completed SMP to include consideration of agu	ifers and the mon	itorina				
		changes due to mine	subsidence.		programs		lienig				
1K1	0	Mass movement of s due to mine subsider damage to environm	iteep slopes nce. Localised ent.	1	Completed SMP and the monitoring programs						
1S1	0	Mine subsidence lea or loss of natural veg	ds to damage jetation.	1	Completed SMP to include consideration of nati monitoring programs	ural vegetation an	d the				
2C1	0	Damage to bridges d subsidence. Bridges repair.	lue to mine will require	1	None Identified						
2H1	0	Damage to TransGri Electricity transmissi	d and Integral on lines due to	1	Completed SMP to include consideration of the Electricity transmission lines and the monitoring	TransGrid and Int	egral				
		transmission lines re	lectricity equires repair.	2	Asset owners to develop internal impact assess	ments					
		(Includes 330kV, 33k	κV)	3	Revise the Integral Management Plan to include	e Area 3A					
				4	Develop a Management Plan with TransGrid						
				5	Revise the asset protection plan to include Area	Area 3A					
2K1	0	Damage to Cordeaux Cordeaux No 2 Dam subsidence. Dams v repair.	x and Upper due to mine vill require	1	Completed SMP to include consideration of Cor 2 Dams	deaux and Upper	Cordeaux	No			
6A2	0	Damage to Heritage sites due to mine sub	Significant osidence.	1	Completed SMP to include consideration of Are the monitoring programs (include base line asse sites within the area)	as of Heritage Sig essment of Heritag	nificance a ge Significa	and ant			
8A1	0	Movement of Perman Control Marks due to subsidence. Survey false location of the r	nent Survey o mine ors rely on marks.	1	sites within the area) Completed SMP to include consideration of Per and the monitoring programs	manent Survey C	ontrol Mari	κs			

Risk Treatment Schedule (Consequence Order)

Qual Risk	itativ Treat	e Risk Analysis ment Schedule	ANALYSIS NUMBER:	AN De	ALYSIS SITE AND NAME	AX	Sheet:	1
Cons	seque	ence Order	AR0460	Are	a 3A Mine Subsidence (Longwalls 6 -10)	S	of:	2
Ref	Cons	Haza	rd	TID	Treatment Option	ns		
1A1	30	SMP not approved. N to government require does not meet specia management require	on adherance ements. SMP I area nents.	1	Completed SMP and the monitoring programs (include audit of cc	mmitment	ts)
1A2	30	Non adherance to SM government requirem conditions and/or spe management requirer	IP and ents (breach of cial area ments).	1	Completed SMP and the monitoring programs (include audit of co	mmitment	ts)
1B1	10	Water flow and qualit fracturing of river bed to creeks due to mine Flow on environmenta result.	y changes, and rock bars subsidence. al impacts	1	Completed SMP to include consideration of Sar the monitoring programs	ldy and Wongawil	li Creeks a	and
1C1	10	Water flow and qualit the catchment area, f creek bed and rock b due to mine subsiden on environmental imp the wide area.	y changes over racturing of ars to creeks ce. Large flow acts result over	1	Completed SMP to include consideration of tribu programs	utaries and the mo	onitoring	
1J2	10	Rock falls from cliffs of subsidence. Rock fal to personnel. (Note: There were no identified in the area)	due to mine I causes injury pagodas	1	Completed SMP to include Public Safety and th	e monitoring prog	rams	
1N1	10	dentified in the area) Change in swamp function, environmental damage to swamps vetlands, water related ecosystem sites due to mine subsidence. Vine subsidence leads to loss of		1	Completed SMP to include swamps, wetlands, we the monitoring programs	water related ecos	ystems ar	nd
101	10	Mine subsidence lead listed species or their	ls to loss of habitat.	1	Completed SMP to include consideration of Thread the monitoring programs	eatened and prote	cted spec	ies
2K2	10	Unacceptable loss of	stored water	1	Completed SMP to include consideration of Cor	deaux Reservoir		
		mine subsidence. Re require repair.	eservoir will	2	Dams Safety Committee (DSC) approval require notification area of Cordeaux Reservoir	ed to mine within t	he	
1E1	3	Contribution of shallo resource to catchmer Ground water level ar changes due to mine	w ground water ht yield. hd quality subsidence.	1	Completed SMP to include consideration of aquiprograms	ifers and the mon	itoring	
1F1	3	Enhancement or deve spring flow resulting i changes due to mine Flow on environmenta result.	elopment of n water quality subsidence. al impacts	1	Completed SMP and the monitoring programs (include audit of co	mmitment	ts)
5H1	3	Damage to exploratio due to mine subsiden in the release of gas surface or water ente	n bore holes ce. Resulting or water to the rs deep storage.	1	Completed SMP to include consideration of exp associated equipment and the monitoring progra	loration bore holes ams	s and	
6A1	3	Damage to Archaeolo Significant sites due t	ogical o mine	1	Completed SMP to include consideration of Are Significance and the monitoring programs	as of Archaeologi	cal	
		subsidence.		2	Obtain consent under the National Parks and W (prior to the mining of Longwall 6)	ildlife Act 1974 - S	Section 90	I
1D1	1	Ground water level and quality changes due to mine subsidence.		1	Completed SMP to include consideration of aqui programs	ifers and the mon	itoring	
1J1	1	Rock falls from cliffs due to mine subsidence. Rock fall causes localised damage to environment. (Note: There were no pagodas identified in the area)			Completed SMP and the monitoring programs (include audit of cc	mmitment	ts)
1K1	1	Mass movement of si to mine subsidence. damage to environme	eep slopes due Localised ent.	1	Completed SMP and the monitoring programs			

Qual Risk	itativ Treat	e Risk Analysis ment Schedule	ANALYSIS NUMBER:	AN De	IALYSIS SITE AND NAME	AX	Sheet:	2
Cons	seque	ence Order	AR0460	Are	ea 3A Mine Subsidence (Longwalls 6 -10)	CONSULTING	of:	2
Ref	Cons	Haza	rd	TID	Treatment Optio	ns		
1K2	1	Surface cracking alor due to mine subsider damage to environme enhancment of erosic sedimentation.	ng steep slopes ice. Localised ent and on and	1	Completed SMP and the monitoring programs			
1S1	1	Mine subsidence lead loss of natural vegeta	ds to damage or ition.	1	Completed SMP to include consideration of nation monitoring programs	ural vegetation and	d the	
2B1	1	Damage to fire roads subsidence. Roads r	due to mine equire repair.	1	Completed SMP to include consideration of road programs.	ds and the monito	ring	
				2	Revise management of SCA roads to include A	rea 3A		
2C1	1	Damage to bridges d subsidence. Bridges repair.	ue to mine will require	1	None Identified			
2H1	1	Damage to TransGrid Electricity transmission	d and Integral on lines due to ectricity	1	Completed SMP to include consideration of the Electricity transmission lines and the monitoring	TransGrid and Int programs	egral	
		transmission lines re	quires repair.	2	Asset owners to develop internal impact assess	ments		
			V)	3	Revise the Integral Management Plan to include	e Area 3A		
				4	Develop a Management Plan with TransGrid			
				5	Revise the asset protection plan to include Area	i 3A		
2K1	1	Damage to Cordeaux Cordeaux No 2 Dam subsidence. Dams w	and Upper due to mine vill require repair.	1	Completed SMP to include consideration of Cor 2 Dams	deaux and Upper	Cordeaux	No
6A2	Cordeaux No 2 Dam due to mine subsidence. Dams will require rep Damage to Heritage Significant situ due to mine subsidence. Movement of Permanent Survey.				Completed SMP to include consideration of Are the monitoring programs (include base line assessites within the area)	as of Heritage Sig essment of Heritag	nificance ge Signific	and ant
8A1	1	Movement of Permar Control Marks due to subsidence. Surveyo location of the marks	hent Survey mine ors rely on false	1	sites within the area) Completed SMP to include consideration of Per and the monitoring programs	manent Survey Co	ontrol Mar	ks

Risk Treatment Schedule and Action Plan

Qua	litative AX		SYSTEM:Dendrobium MineAR0460Area 3A Mine Subsidence (Longwalls 6 -10)			ed by: Shane Chiddy 24th August 2007		Sheet:	1
Risk Analysis Treatment Schedule		0	SUB SYSTEM: Natural Features No: 1		Verified Date:	by: Bruce Blunden / Ga 29 August 2007	ary Br	of:	6
ID	HAZARD & EFFECTS	TID	TREATMENT	DATE REQ	UIRED	RESPONSIBLE OFFICER	DATE		TED
1A1	SMP not approved. Non adherance to government requirements. SMP does not meet special area management requirements.	1	Completed SMP and the monitoring programs (include audit of commitments)	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1A2	Non adherance to SMP and government requirements (breach of conditions and/or special area management requirements).	1	Completed SMP and the monitoring programs (include audit of commitments)	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1B1	Water flow and quality changes, fracturing of river bed and rock bars to creeks due to mine subsidence. Flow on environmental impacts result.	1	Completed SMP to include consideration of Sandy and Wongawilli Creeks and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1C1	Water flow and quality changes over the catchment area, fracturing of creek bed and rock bars to creeks due to mine subsidence. Large flow on environmental impacts result over the wide area.	1	Completed SMP to include consideration of tributaries and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1D1	Ground water level and quality changes due to mine subsidence.	1	Completed SMP to include consideration of aquifers and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1E1	Contribution of shallow ground water resource to catchment yield. Ground water level and quality changes due to mine subsidence.	1	Completed SMP to include consideration of aquifers and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1F1	Enhancement or development of spring flow resulting in water quality changes due to mine subsidence. Flow on environmental impacts result.	1	Completed SMP and the monitoring programs (include audit of commitments)	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1J1	Rock falls from cliffs due to mine subsidence. Rock fall causes localised damage to environment. (Note: There were no pagodas identified in the area)	1	Completed SMP and the monitoring programs (include audit of commitments)	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			
1J2	Rock falls from cliffs due to mine subsidence. Rock fall causes injury to personnel. (Note: There were no pagodas identified in the area)	1	Completed SMP to include Public Safety and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment			

Qualitative Risk Analysis Treatment Schedule		7	SYSTEM:Dendrobium MineAR0460Area 3A Mine Subsidence (Longwalls 6 -10)			ed by: Shane Chiddy 24th August 2007		Sheet: 2
		0	SUB SYSTEM: Natural Features No: 1		Verified Date:	by: Bruce Blunden / Ga 29 August 2007	ary Br	of: 6
ID	HAZARD & EFFECTS	TID	TREATMENT	DATE REC	UIRED	RESPONSIBLE OFFICER	DATE	COMPLETED
1K1	Mass movement of steep slopes due to mine subsidence. Localised damage to environment.	1	Completed SMP and the monitoring programs	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment		
1K2	Surface cracking along steep slopes due to mine subsidence. Localised damage to environment and enhancment of erosion and sedimentation.	1	Completed SMP and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment		
1N1	Change in swamp function, environmental damage to swamps, wetlands, water related ecosystems sites due to mine subsidence.	1	Completed SMP to include swamps, wetlands, water related ecosystems and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment		
101	Mine subsidence leads to loss of listed species or their habitat.	1	Completed SMP to include consideration of Threatened and protected species and the monitoring programs	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment		
1S1	Mine subsidence leads to damage or loss of natural vegetation.	1	Completed SMP to include consideration of natural vegetation and the monitoring programs	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment		

Qua	litative AX		SYSTEM:Dendrobium MineAR0460Area 3A Mine Subsidence (Longwalls 6	10)	Compile Date:	ed by: Shane Chiddy 24th August 2007		Sheet: 3
Risl Trea	Analysis	0	SUB SYSTEM: Public Utilities No: 2	TEM: Public Utilities		by: Bruce Blunden / G 29 August 2007	ary Br	of: 6
ID	HAZARD & EFFECTS	TID	TREATMENT	DATE REC	UIRED	RESPONSIBLE OFFICER	DATE	COMPLETED
2B1	Damage to fire roads due to mine subsidence. Roads require repair.	1	Completed SMP to include consideration of roads and the monitoring programs.	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager R&I		
		2	Revise management of SCA roads to include Area 3A	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager R&I		
2C1	Damage to bridges due to mine subsidence. Bridges will require repair.	1	None Identified					
2H1	Damage to TransGrid and Integral Electricity transmission lines due to mine subsidence. Electricity transmission lines requires repair. (Includes 330kV, 33kV)	1	Completed SMP to include consideration of the TransGrid and Integral Electricity transmission lines and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment		
		2	Asset owners to develop internal impact assessments	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager R&I		
		3	Revise the Integral Management Plan to include Area 3A	Saturday, 1 December 2007		BHPB Illawarra Coal - Manager R&I		
		4	Develop a Management Plan with TransGrid	Saturday, 1 Dec	ember 2007	BHPB Illawarra Coal - Manager R&I		
		5	Revise the asset protection plan to include Area 3A	Saturday, 1 Dec	ember 2007	BHPB Illawarra Coal - Manager R&I		
2K1	Damage to Cordeaux and Upper Cordeaux No 2 Dam due to mine subsidence. Dams will require repair.	1	Completed SMP to include consideration of Cordeaux and Upper Cordeaux No 2 Dams	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment		
2K2	Unacceptable loss of stored water from Cordeaux Reservoir due to mine subsidence. Reservoir will require repair.	1	Completed SMP to include consideration of Cordeaux Reservoir	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment		
		2	Dams Safety Committee (DSC) approval required to mine within the notification area of Cordeaux Reservoir	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Approvals		

Qualitative Risk Analysis Treatment Schedule		SYSTEM:Dendrobium MineAR0460Area 3A Mine Subsidence (Longwalls 6 -10)		Compile Date:	ed by: Shane Chiddy 24th August 2007	7 Sheet:				
		SUB SYSTEM: No: 5	: Industrial, Commercial and Business Establishments		Verified Date:	by: Bruce Blunden / G 29 August 2007	3ruce Blunden / Gary Br 29 August 2007			
ID	HAZARD & EFFECTS	TID		TREATMENT	DATE REG	UIRED	RESPONSIBLE OFFICER	DATE		D
5H1	Damage to exploration bore holes due to mine subsidence. Resulting in the release of gas or water to the surface or water enters deep storage.	s 1 ;	Completed SMP to inc and associated equipm	lude consideration of exploration bore holes nent and the monitoring programs	Friday, 28 Septe	ember 2007	BHPB Illawarra Coal - Manager Environment			

Qualitative Risk Analysis Treatment Schedule			SYSTEM:Dendrobium MineAR0460Area 3A Mine Subsidence (Longwalls 6 -10)		Compiled by:Shane ChiddyDate:24th August 2007			Sheet: 5
			SUB SYSTEM: Areas of Archaeological and/or Heritage s No: 6	SUB SYSTEM:Areas of Archaeological and/or Heritage significanceVNo:6D		ified by: Bruce Blunden / Gary Br e: 29 August 2007		of: 6
I	D HAZARD & EFFECTS	TID	TREATMENT	DATE REC	UIRED	RESPONSIBLE OFFICER	DATE	E COMPLETED
64	1 Damage to Archaeological Significant sites due to mine subsidence.	1	Completed SMP to include consideration of Areas of Archaeological Significance and the monitoring programs	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment		
		2	Obtain consent under the National Parks and Wildlife Act 1974 - Section 90 (prior to the mining of Longwall 6)	Friday, 1 Januar	y 2010	BHPB Illawarra Coal - Manager Environment		
64	Damage to Heritage Significant sites due to mine subsidence.	1	Completed SMP to include consideration of Areas of Heritage Significance and the monitoring programs (include base line assessment of Heritage Significant sites within the area)	Friday, 28 Septe	mber 2007	BHPB Illawarra Coal - Manager Environment		

Qualitative Risk Analysis Treatment Schedule		tative <u>AX</u>		Dendrobium Mine Area 3A Mine Subsidence (Lo	ngwalls 6 -1	0)	Compile Date:	d by:	Shane Chiddy 24th August 2007		Sheet:	6
		SUB SYSTEM: No: 8	SUB SYSTEM: Permanent Survey Control Marks No: 8		Verified Date:	Verified by:Bruce Blunden / Gary EDate:29 August 2007		ary Br	of:	6		
ID	HAZARD & EFFECTS	TID		TREATMENT		DATE REQ	UIRED	RESPO	NSIBLE OFFICER	DATE		ETED
8A1	Movement of Permanent Survey Control Marks due to mine subsidence. Surveyors rely on false location of the marks.	1	Completed SMP to inc Control Marks and the	lude consideration of Permanent S monitoring programs	urvey	Friday, 28 Septe	mber 2007	BHPB Illa Manager	awarra Coal - R&I			

Attachment 9 Revisions

Document Revision History

Revision	Date	Modification Decription
1	28-Sep-07	Released for comments
2	28-Aug-07	Minor word and grammar corrections from Cardno Forbes Rigby Pty Ltd.
3	04-Sep-07	Minor word and grammar corrections from BHPB personnel
4	12-Sep-07	Separate Gross Exposure section added into the report