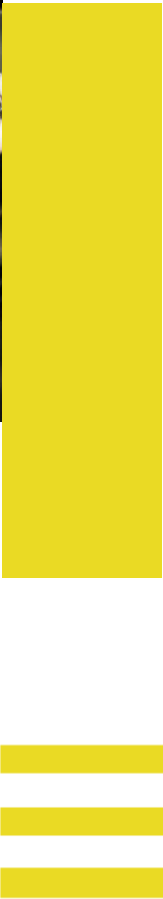




ATTACHMENT F –
LONGWALL 37 END OF
PANEL REPORT

CULTURAL HERITAGE
ASSESSMENT

NICHE ENVIRONMENT AND
HERITAGE, APRIL 2015



27 April 2015

BHP Billiton Illawarra Coal
PO Box 514
Unanderra NSW 2526

Re: ABORIGINAL HERITAGE ASSESSMENT FOR WEST CLIFF COLLIERY - LONGWALL 37 END OF PANEL REPORT

As requested, Niche Environment and Heritage has undertaken a site assessment and review of the predicted and observed impacts on Aboriginal heritage values resulting from the extraction of Longwall 37 at West Cliff Colliery. This assessment is attached for inclusion in BHP Billiton Illawarra Coal's End of Panel Report for Longwall 37.

There were no new observable impacts noted during the site inspections. However, observable impacts had previously been noted to the Aboriginal shelter site Georges River 2 (AHIMS # 52-2-2243) as a result of subsidence movements from Longwall 37 (Niche 2014). : The following recommendations have been made with consideration of past and present site observations:

- Illawarra Coal should notify the Registered Aboriginal Parties (RAPs) of this End of Panel report. (RAPs are listed in the Bulli Seam Operations Project Heritage Management Plan, unless the RAPs have been otherwise updated in accordance with the Plan) ; and
- Illawarra Coal will notify all other necessary internal and external parties of the results of this End of Panel report as per the Bulli Seam Operations Project: Heritage Management Plan BSPO Approval Performance Measures and the TARP.

Please do not hesitate to contact me should you require any further information.

Yours sincerely



Renée Regal

Niche Environment and Heritage

Background and Introduction

Niche Environment and Heritage (Niche) was commissioned by BHP Billiton Illawarra Coal (BHPBIC) to conduct an End of Panel (EoP) assessment of the Aboriginal cultural heritage and archaeological sites within the limit of subsidence effects of Longwall 37 at West Cliff Colliery. This area has been defined as the 'subject area' and is shown in Figure 2, taken from Cardno 2013:8.

This EoP report includes a summary of: previous monitoring; the results of the Subsidence Report prepared by MSEC; the results of a site inspection; a discussion; and conclusions and recommendations.

Subsidence Monitoring Results Summary (MSEC)

The End of Panel Subsidence Report for Longwall 37 prepared by MSEC (MSEC740_Revision A) is a comprehensive report which addresses all aspects of the recorded subsidence parameters resulting from the extraction of Longwall 37.

Specifically in relation to matters that may affect Aboriginal cultural heritage values MSEC notes the following:

- In relation to the Georges River, measured subsidence parameters (incremental and total subsidence movements; incremental and total upsidence and closure) the maximum observed incremental and total upsidence and closure movements at the Georges River cross lines O,P and R after the completion of Longwall 37, were generally less than the maxima predicted. The maximum observed incremental and total upsidence and closure movements for the Georges River cross lines L, M and N after the completion of Longwall 37, were greater than the maxima predicted. The incremental exceedances of upsidence and closure for the L, M and N lines were small, and mostly related to mining of previous longwalls (MSEC, 2015: 6).
- No further fracturing in the bed of the Georges River occurred following extraction of Longwall 36 (MSEC740_Revision A p.16).

Overview of previous monitoring undertaken




Monitoring of Aboriginal archaeological sites has been carried out as recommended by Biosis Research (2007).




Site Inspection and Results

Three Aboriginal archaeological sites were inspected as part of this assessment and included: AHMS #52-2-2243 an Aboriginal shelter with art and deposit, a shelter with art AHMS #52-2-2242 and AHMS #52-2-2244 an Aboriginal shelter with art and axe grinding grooves (Figure 2 Cardno 2013:8). These sites were inspected because one was located within the possible zone of subsidence movements associated with Longwall 37 the other two were noted to be impacted by subsidence movements associated with Longwalls 35 and 36.

The site inspection was carried out on 3 February 2015 by Renée Regal (Niche Environment and Heritage), Kim Vaux and Josh Carlon (BHP Billiton Illawarra Coal). A summary of the findings of the site visit are outlined in Table 1 and Table 2.

Table 1: Summary of the site visits to the Aboriginal Heritage Sites in Proximity to Longwall 37

AHIMS site number	Site Name	Results of inspection	Photograph of current condition of site
52-2-2243	Georges River 2	<p>Impacts to this shelter had been noted in Niche (2014). Observations found that impacts had not worsened and remained in the same condition as described by Niche 2014, due to the extraction of Longwall 36.</p> <p>The Thin, vertical cracking previously observed in the shelter roof to the right side of the art panel remains the same as previously described.</p> <p>The cracking does not appear to have altered seepage or water movements in the shelter, and there is no evidence of water flow or recent micro-vegetation growth associated with the cracking.</p> <p>The art panel remains in the same condition as described in Bosis Research 2007 and Niche 2013b and 2014 and has not been affected by the observed changes.</p>	 <p>Northern end of shelter examples of horizontal and vertical cracking that remain the same as previously described.</p>  <p>Picture of art panel still in same condition as described by Bosis 2007, Niche 2013b and 2014</p>  <p>View of the shelter facing north. Same as depicted by Bosis 2007 and Niche 2013b (Source: Niche Environment and Heritage).</p>

AHIMS site number	Site Name	Results of inspection	Photograph of current condition of site
52-2-2244	Georges River 3	<p>This shelter was in the same condition as described by Niche 2014. There has been no further movement of the horizontal bedding plane joints of the shelter and the cracking and exfoliation observed in relation to LW35. The site remains the same as previously described.</p> <p>The cracking does not appear to have altered seepage or water movements in the shelter, and there is no evidence of water flow or recent micro-vegetation growth associated with the cracking.</p> <p>The art panel remains in the same condition as described in Biosis Research 2007 and Niche 2013b.</p>	 <p>Example of the cracking along the back wall of the shelter, in the same condition as depicted in Niche 2014.</p>
52-2-2242	Georges River No 4	<p>Shelter and Art are in the same condition as described by Biosis Research 2007 and Niche Environment and Heritage 2011, 2013 and 2014. The art has started to loose granular substrate and there has been some cracking and flaking to the panel due to case hardening. Artefacts were not observed in the drip-line of the shelter.</p>	 <p>52-2-2242 remains in the same condition as described and pictured 2007.</p>  <p>Charcoal in-fill art present at 52-2-2242 remains in the same condition as described in Biosis Research 2007 and Niche Environment and Heritage 2013 and 2014.</p>

Discussion and Conclusion

There were no observable changes as a result of the extraction at the sites: Georges River No. 2, Georges River No. 3, Georges River No. 4,.

The Trigger Action Response Plan (TARP) (Table 2) contains the Performance Measures along with the proposed Corrective Management Actions for Aboriginal heritage sites; as outlined in the Longwalls 37 and 38 Heritage Management Plan (Cardno, 2013),.

In addition to the TARP, the Longwall 37-38 Extraction Plan (Niche 2013) and the Bulli Seam Operations Project Heritage Management Plan (Biosis 2012) state the following actions in the event of impacts to an identified Aboriginal site:

Notification: DoPI, RAPs and OEH will be notified of the find and the ICHPL Corrective Action Procedure will be initiated.

Management Actions:

– In consultation with OEH, RAPs, DoPI and a qualified archaeologist, the site will be inspected and a management strategy developed.

– The management strategies will be implemented in accordance with current conservation practice and the conservation principles contained within the Australia International Council on Monuments and Sites (ICOMOS) Burra Charter. RAPs must be consulted regarding appropriate management methodologies and any advice would be taken into consideration in the development of the management strategies.

– An appropriate monitoring program will be developed to report on the effectiveness of the management strategy.

Reporting: A report detailing the impact, details of consultation, management actions undertaken and effectiveness of management actions undertaken will be completed by a qualified archaeologist within 6 months of the completion of the impact monitoring program. A copy of this report will be provided to DoPI, OEH and RAPs (Biosis 2012)

In the event that there are subsidence impacts to any site being monitored, management strategies specific to the impact will be developed. The management strategies will be implemented in accordance with current conservation practice and principles contained within the Australia International Council on Monuments and Sites (ICOMOS) Burra Charter, and the DEC Guidelines for Aboriginal Heritage Impact Assessment (Draft). The advice of the identified Aboriginal communities regarding appropriate management methodologies will form an integral part of the development of the management strategies.

All contingent management strategies will be developed in consultation with relevant stakeholders. (Cardno Forbes Rigby 2008)

The recommendations presented overleaf are intended to allow the company to discharge its obligations under the Longwalls 37 to 38 Extraction Plan and the Bulli Seam Operations Heritage Management Plan.

Recommendations

The activities undertaken for the completion of this EoP Report have satisfied several of the response actions required by the TARP. It is not recommended that an additional monitoring program be implemented for the site Georges River No. 2 (52-2-2243). There is also no evidence that the hydrological regime at the site has been affected by the subsidence impacts. The existing monitoring program will be continued.

The following recommendations have been made with consideration of past and present site observations:

- Illawarra Coal should notify the Registered Aboriginal Parties (RAPs) of this End of Panel report. (RAPs are listed in the Bulli Seam Operations Project Heritage Management Plan, unless the RAPs have been otherwise updated in accordance with the Plan) ; and
- Illawarra Coal should notify all other necessary internal and external parties of the results of this End of Panel report, as outlined in Table 2 overleaf.

Table 2: BSOP Approval Performance Measures Table

Feature	Performance Measures	Observations	Actions as a result of LW 37
<ul style="list-style-type: none"> Sites determined to hold “special significance” as a result of studies required for Extraction Plans. <ul style="list-style-type: none"> (no sites applicable for Longwall 37) 	<ul style="list-style-type: none"> Negligible impact or environmental consequence 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None required.
<ul style="list-style-type: none"> Sites determined to hold high or moderate significance as a result of studies required for Extraction Plans. Georges River 2 (52-2-2243) 	<ul style="list-style-type: none"> Less than 10% of such sites across the mining area affected by subsidence impacts (other than negligible impacts or environmental consequence) 	<ul style="list-style-type: none"> No changes site as a result of Longwall 37 extraction. 	<ul style="list-style-type: none"> None required.
<ul style="list-style-type: none"> Other Aboriginal Heritage Sites Georges River 3 (52-2-2244) Georges River 4 (52-2-2242) 	<ul style="list-style-type: none"> Less than 10% of such sites (or 1 such site, whichever is the greater) within any Longwall mining domain area is affected by subsidence impacts (other than minor impacts or environmental consequence) 	<ul style="list-style-type: none"> No impacts as a result of Longwall 37 extraction 	<ul style="list-style-type: none"> Notify RAPs and advise of impact ACTION REQUIRED-Notification of EoP to RAPs. Provide a report detailing the impact, details of consultation, management actions undertaken and effectiveness of management actions undertaken, completed by a qualified archaeologist within 6 months of the completion of the impact monitoring program. Provide a copy to DoPI, OEH and RAPs. ACTION NOT REQUIRED Continue with monitoring program COMPLETED BY THIS REPORT Condition assessment and photographic record COMPLETED BY THIS REPORT Summarise actions in SMP Status and Impact Reports, EoP and AEMR COMPLETED BY BHPBIC

References

Biosis Research 2007 *Archaeological Cultural Heritage Assessment: Review of West Cliff Area 5- Longwalls 34-36, Appin NSW*. An unpublished report for BHP Billiton Illawarra Coal

Biosis Research 2010 *West Cliff Area 5 Longwall 33 End of Panel Report: Cultural Heritage*. An unpublished report for BHP Billiton Illawarra Coal

Biosis 2012. *Bulli Seam Operations Project: Heritage Management Plan*. An unpublished report for BHP Billiton Illawarra Coal

Cardno Forbes Rigby (2013) *West Cliff Area 5 Longwalls 37 and 38 Extraction Plan, Annex F Heritage Management Plan, Rev A, August 2013*. An unpublished report for BHP Billiton Illawarra Coal.

MSEC 2006 *The Predictions of Subsidence Parameters and the Assessment of Mine Subsidence Impacts on Sub-surface Features Due to Mining Longwalls 31 to 33 at West Cliff Colliery in Support of an SMP Application*. An unpublished report prepared for BHP Billiton - Illawarra Coal. Report Number MSEC208, Revision B, Mine Subsidence Engineering Consultants.

MSEC 2007. *The prediction of Subsidence Parameters and the Assessment of Mine Subsidence Impacts on Natural Features and Surface Infrastructure resulting from the extraction of proposed Longwalls 34 to 46 in Area 5 West Cliff Colliery in support of the SMP Application*. Report prepared for BHP Billiton - Illawarra Coal. Report Number MSEC326, Revision A.

MSEC 2015 *BHP Billiton Illawarra Coal: West Cliff Colliery- Longwall 37 End of Panel Subsidence Monitoring Report for West Cliff Longwall 37*. An unpublished report prepared for BHP Billiton Illawarra Coal. Report Number MSEC740 Revision A, Mine Subsidence Engineering Consultants.

MSEC 2014 *BHP Billiton Illawarra Coal: West Cliff Colliery- Longwall 36 End of Panel Subsidence Monitoring Report for West Cliff Longwall 36*. An unpublished report prepared for BHP Billiton Illawarra Coal. Report Number MSEC270 Revision A, Mine Subsidence Engineering Consultants.

Niche Environment and Heritage 2011 *Aboriginal and European Heritage Assessment for West Cliff Colliery - Longwall 34 End of Panel Report*. An unpublished report prepared for BHP Billiton Illawarra Coal.

Niche Environment and Heritage 2013 *Heritage Assessment: West Cliff Colliery Longwalls 37 and 38 Extraction Plan*. An unpublished report prepared for BHP Billiton Illawarra Coal.

Niche Environment and Heritage 2013b *West Cliff Longwall 35 End of Panel Heritage Assessment*. An unpublished report prepared for BHP Billiton Illawarra Coal.

Recorded Heritage Items

WESTCLIFF AREA 5
 LW 37 and 38

Legend

- Study Area
- European Heritage (Niche, 2013)
- Aboriginal Sites (Niche, 2013)**
- Art (Pigment or Engraved)
- Artefact
- Axe Grinding Groove
- Open Camp Site
- Scarred Tree
- Shelter with Art
- Shelter with Deposit
- Shelter with PAD
- Major Roads (LPI)
- Watercourse (MSEC, 2013)
- 3rd Order Watercourse (MSEC, 2013)
- 4th Order Watercourse (MSEC, 2013)
- West Cliff LW 37 and 38 (BHPBIC 2013)

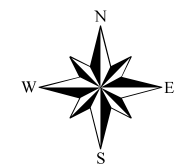
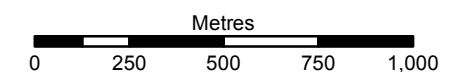


FIGURE 2

Scale 1:20,000 (at A3)



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
 Date: 11/06/2013
 Coordinate System: GDA 1994 MGA Zone 56
 Project: 112054-01
 Map: G1010_RecordedHeritageItems.mxd 02
 Aerial imagery supplied by BHPBIC (2007 and 2009)

