PKC Site Demolition Project

Response to additional issues raised

Executive Summary

Since the public display period for the Environmental Assessment (EA) parties including the Department of Planning raised a number of pertinent issues, including a late submission by Wollongong City Council.

All of the issues have been previously addressed including an extensive assessment of the heritage value of the PKC site and its individual component structures. These assessments confirmed the observations contained in the EA.

More recently the Department of Planning requested additional information on:

- Potential hazards that may arise during the demolition of the stack,
- Hazards to public and worker safety posed by the declining condition of the stack,
- Ongoing costs and liabilities of retaining the stack, and
- National Heritage nomination of PKC site.

A summary of the findings is enclosed.

The request for additional information has assisted in clarifying the heritage value of some components of the PKC site and highlighted the costs and risks to public and worker safety of maintaining the 200m stack in situ.

On the basis of the evidence and there are no further impediments to the Department finalising its assessment for the Minister's determination. This will allow PKC to finalise its Demolition Plan to the satisfaction of the Department, WorkCover and the NSW Police.

Upon agreement with the Demolition Plan PKC will engage in a series of community consultations and employ between 30 and 40 employees and contractors to commence demolition works.

PKC looks forward to working with the Department of Planning and the NSW Government to identify employment generating end uses for the PKC lands at Port Kembla.

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Introduction

The Environmental Assessment (EA) for a Project Application under Part 3A of the Environmental Planning and Assessment Act 1979 was submitted to the Department of Planning (the Department) in February 2009, and a Response to Submissions in June 2009. The application sought approval to demolish the structures down to slab level on the PKC site at Military Road, Port Kembla.

PKC has had an ongoing engagement with the Department in the six months following the Response to Submissions. Several matters have been raised over and above the matters covered in the submissions and Response in relation to:

- Hazard arising from demolishing main stack
- Hazard arising from retaining main stack
- Other implications arising from retaining main stack
- Heritage nomination of site

This report aims to conclude the dialogue between PKC and the Department in order that it might determine the project approval in accordance with its powers under the Act.

Response to key issues

Hazard arising from demolishing main stack

Issue

In a meeting on 17 December 2009, hazard specialists from the Department raised concerns regarding the method of demolition of the stack. Key concerns related to the potential for nearby persons to be injured by fly material.

Response

In order to address the concerns, PKC sought the advice of an independent demolition contractor with extensive experience of similar projects, Precision Demolition. In particular, Precision Demolition explained the substantial differences between the PKC stack and its method of demolition and the demolition of the Canberra Hospital in 1997 which resulted in a fatality. The contractor's comments on the matter are summarised in a letter attached in Appendix 1.

Also in attendance was Rosalie Mayo-Ramsay from WorkCover NSW, who explained the several steps the proponent and contractor must follow in order to be granted a licence to undertaken the demolition. The steps required include licences for both the contractor and the method to be used. An additional step is required for explosive demolition methods, which are proposed for use in the PKC project. The licensing procedure is set out in *Guide to Licence Applicants for Restricted and Unrestricted Demolition*, WorkCover NSW, January 2008.

WorkCover has ultimate authority over worker and public safety, and also in conjunction with NSW Police, PKC will develop and execute a satisfactory demolition program for the site.

Hazard arising from retaining main stack

Issue

The Department required additional information about the current unsatisfactory condition of the main stack.

Response

Long-term retention of the stack is not feasible, given its risk to worker and public safety and difficulty in identification of responsible party, which outweigh any heritage significance it demonstrates.

The key risks the stack currently presents are of concern to the director, in particular:

- Spalling concrete and risk of harm to workers or community, both on the site and in the adjacent public road, Electrolytic Road
- Poor structural integrity of the stack, indicated by its failure to meet Concrete Code (AS3600) and with Earthquake Code (AS1170A)
- BASE jumpers break ins and risk of harm either during access or during jumping

Serious injury or death could arise from these risks.

In response to the risks, PKC has instituted an exclusion zone around the base of the stack. Regular audits monitor and collect the concrete which falls from the stack. An example of the size and nature of the concrete found at the base of the stack is provided in the following photograph:

An example of a part of the stack face from which a concrete chunk has fallen is shown below:

The director's concerns are enunciated in a File Note dated 18 January 2010, which is attached in Appendix 2.

Other implications arising from retaining main stack

Issue

The Department requested additional information about the ongoing implications of retaining the main stack.

Response

Should the stack be retained, it would represent an unacceptable cost to its owner. The costs are both capital, to upgrade the stack to meet mandatory safety codes, and ongoing, to maintain the stack and to provide adequate security against BASE jumpers.

The cost to upgrade the stack to meet standards, and to repair damage, has been estimated in the order of $18-20 million over 20 years. This cost is made up of:

- Repair windshield costing $7-8 million
- Upgrade liner costing $2-3 million
- $780 000 to repair ladders, windows, drains and underside of landing stages
- Additional expenditure of at least $1 million every ten years to maintain strength compliance
- Expenditure of at least $350,000 every three years to maintain the windshield including erecting scaffolding around the stack, removing spalling concrete, preparing a sound concrete surface, saw cut edges to clean and paint reinforcement, apply primer and repair to original line with structural repair mortar

In addition, there is significant burden of constant security and permanent closure of the stack due to repeated BASE jumper break-ins and jumps, in the order of $400 000 over 20 years.

The cost is unacceptable because the future of the site is not determined and it would be unreasonable for the Government to expect future users to bear the ongoing cost. Further, the stack is currently incapable of generating any income to support its maintenance, and the requirement on an owner to commit to the cost would likely force the obligation to be defaulted.

PKC is concerned that if the stack is not demolished as a part of this project, it will never be able to be demolished. If the site is redeveloped, the stack will continue to represent a hazard and cost burden to future site users. Further, the risk to property and people at an occupied site will be so great as to severely restrict the ability for its approval authorities (the Department of Planning and WorkCover NSW) to permit its demolition.

The implications for not demolishing the stack extend beyond the issues related to direct cost and risk of harm. The presence of the stack on the site significantly devalues the site as a whole, and may prevent development and its concomitant job creation. This will further impinge upon the ability of its owner to generate funds capable of properly maintaining the stack, and ultimately the community is likely to expect the local and/or NSW Government to intervene in either purchasing the stack or expending funds in order to render it safe. PKC therefore sees any potential retention of the stack to not only be a local risk, but also a risk to the local and NSW governments.

Heritage nomination of site

Issue

The Department noted that the Statement of Heritage Impact stated that the site had been nominated for inclusion in the Commonwealth Heritage List. The Department required clarification as to whether this constituted a requirement for additional heritage assessment to be undertaken.

Response

During the assessment process, PKC has commissioned several expert heritage reports for the site:

- Preliminary Heritage Advice Port Kembla Copper, October 2009 (132 pages), which was an assessment of the entire site
- Statement of Heritage Impact: The 205m Chimney Stack at Port Kembla Copper Military Road Port Kembla, November 2009 (53 pages)
- Statement of Heritage Impact: The Assay Office and Chimney of the former Precious Metals Mill at Port Kembla Copper Military Road Port Kembla, November 2009 (61 pages)

The heritage nomination referred to in the Statement of Heritage Impact was assessed by PKC. It was found that the nomination included photographs which were not of the PKC site but rather the neighbouring BlueScope Steel plant, and included factual errors in the text regarding PKC, calling into question the basis of the nomination. It was also not compliant with the requirements of nomination because no references to the heritage criteria were listed, nor was any justification provided as to why the site meets any of the criteria.

Furthermore, there is no legal basis to suggest the nomination of the site has a statutory bearing on the Department in its assessment of the project, or the Minister in its determination. To assist the Department to properly address the issue of the nomination, PKC sought legal advice as to the impact the nomination should have on the assessment of the project on its merits. This concluded that:

> ***the mere nomination of the site should not be of significance in the determination of the application****. There is no reason why the DG's report can not properly refer to it so that the Minister can take the nomination into account as part of the materials relating to heritage. But, even if it were taken*

into account and the stack were considered to have heritage value of national significance, other factors (relating to safety and the practicalities that the stack will not be brought into a condition to meet current engineering and safety standards) out-weigh any heritage significance justifying approval to demolish. There would appear to be no good reason to require further heritage reports, if only because it is doubtful if they would reveal any further applicable information. Even if they did, they would not be likely to change the decision that should properly be made and only incur unnecessary costs and delay.

To this end, PKC understands that the Department currently has all the heritage information required to assess the project on its merits, by weighing the potential heritage significance of the site with the imminent risk of harm it presents to the community in its current form, and the potential benefits which will be realised as a result of the project proceeding.

Conclusion

PKC understands that this information will enable the Department to determine the Site Demolition Project in accordance with the EP&A Act.

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Appendices

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Mr. Ian Wilson
Managing Director
Port Kembla Copper Pty Ltd
Military Road
PORT KEMBLA NSW 2505

22 December 2009

Dear Ian,

Re: Demolition of Port Kembla Copper Chimney Stack
Port Kembla NSW

We refer to the above project and the recent meeting that Precision Demolition attended in relation to the demolition of the stack with yourself and the Department of Planning. As is always the case with the proposed method of demolition the first question that is always asked is how this project compares with the tragedy that occurred on the Canberra Hospital Project.

Firstly we need to compare the types of structures to be demolished;
Canberra Hospital consisted of two large multi level buildings being approximately 5 – 9 levels in height that consisted of reinforced concrete floors being supported by a structural steel frame with brick and concrete infill walls.

The chimney stack at Port Kembla consists of an outer reinforced concrete tube with two inner tubular shells, one being of reinforced concrete and the other being of brick construction with the overall height of the structure being 196-5 meters.

Secondly we need to compare the method to be adopted for the demolition;
The method used in the Canberra Hospital Project was as we understand to clean the structural steel supporting columns of the outer shell of concrete and then manually severe the remaining steel section at the base and below the floor above in a semi circular fashion thus creating a knuckle type joint. The method then involved the loading of general blasting explosives onto the back of the steel column and heavily sand bagging them in order that the explosives on initiation would then push the columns out from under the structure, however, whilst most of the columns were removed it also caused some of the steel columns to shatter throwing steel shrapnel outside the exclusion zone. It is also worth noting that little to no fly protection

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measures were adopted by the contractors such as chain wire meshing and geo-fabric curtaining.

The method to be adopted for the stack demolition is to drill into the reinforced concrete walls of the stack shells in a predetermined pattern to enable the placement of the general blasting explosives. The structure will then be wrapped in chain wire and geo-fabric materials around the area to be removed by explosives. On initiation of the charges a wedge section of the stack will removed from the front of the stack at the base, this will cause the stack to topple over in the predetermined direction landing within the drop zone. The reinforced concrete will shatter and move away from the stack leaving the reinforcing steel in place, no material will leave the site as the protection measures adopted will ensure that the material remains around the base of the stack. It is also proposed to leave structures that are to be demolished during the project along either side of the drop zone area to ensure that any material that flies from the structure during the landing impact is also retained within the site boundaries. Together with the above measure and an adopted exclusion zone the stack will be demolished in a safe and systematic process ensuring that the material is retained within the site boundaries.

Should you require any further information please contact the undersigned.

Yours faithfully,

Sean S. Miller for
Precision Demolition.

File note: **Stack Condition and Related Issues**

Date: **18-1-10**

By: **Ian Wilson, PKC GM and Director.**

Executive Summary:

Concerns about the structural integrity of the stack relate to wind loading and earthquake design standards, and basic concrete strength and spalling (concrete cancer) issues. Concrete Spalling is a most obvious example of the compromised structural integrity and the most obvious safety management concern.

PKC has now established an exclusion zone at the base of the stack and established a 'safety canopy' to provide a safe means of access to the base of the stack. Base jumpers have mounted an irritating and potentially fatal attraction for gaining access to the stack.

PKC audits concrete spalling and secure access via a weekly inspection protocol; as a consequence, an accurate and worrying level of spalling has been noted. To date no debris has been found beyond the PKC property boundary, which is less than 10m from the base of the stack, where of course our ability to access by the public is non-existent.

Background:

As a part of the preparation from the application to demolish the stack, URS Australia, our engineering consultants, and Southern Steeplejacks carried out an investigation into the stack condition in early 2008. In January 2008, along with a Japanese colleague I found the fragments shown in Appendix 1. The Steeple Jacks identified the fragments shown in Appendices 2, 3 & 4 in February as part of their inspection. Appendices 3 and 4 are interesting because they show evidence of corroded steel re-enforcing, commonly referred to a 'concrete cancer. All four fragments shown are large and would have caused death or serious injury if they had struck someone. At the time the area around the base of the stack was rubbly and untidy and so it is unknown when these fragments fell off the stack.

As part of the site capping exercise I decided to cap the area around the base of the stack later in 2008. This enabled us to establish a 'clean ground zero' with no debris around. Subsequently we have identified new falls of concrete.

Spalling Since Capping in middle 2008

Appendices 5, 6, 7, 8, 9,10 show the spalling events throughout 2009, the only pattern observed is some correlation to significant weather events. The fragments noted in Apprendix 9, would be large enough to cause fatal injury.

Appendix 11 shows a typical stack spall zone.

Due to the realisation of the potential harm that could be suffered, we have adopted an exclusion zone around the base of the stack. Further it became apparent that PKC staff had to visit the access door at the bottom of the stack mainly due to BASE jumpers trying to gain access at a frequency that made their exposure unacceptable. As a consequence we constructed a 'safety canopy' to facilitate safe access to the entrance at the base of the

stack. The exclusion zone and canopy are shown in Appendices 12 & 13. The BASE jumpers are intelligent and most resourceful in their attempts (some of which have been successful) to gain access to the stack. Appendix 15 shows the steel doors that have been disabled by the BASE jumpers, one of which fell on a member of PKC staff, narrowly avoiding a serious injury, and Appendix 14 shows the extent PKC has had to go to control access. This is extremely irritating as it now takes several hours of grinding and cutting for PKC to gain access to the stack for legitimate purposes.

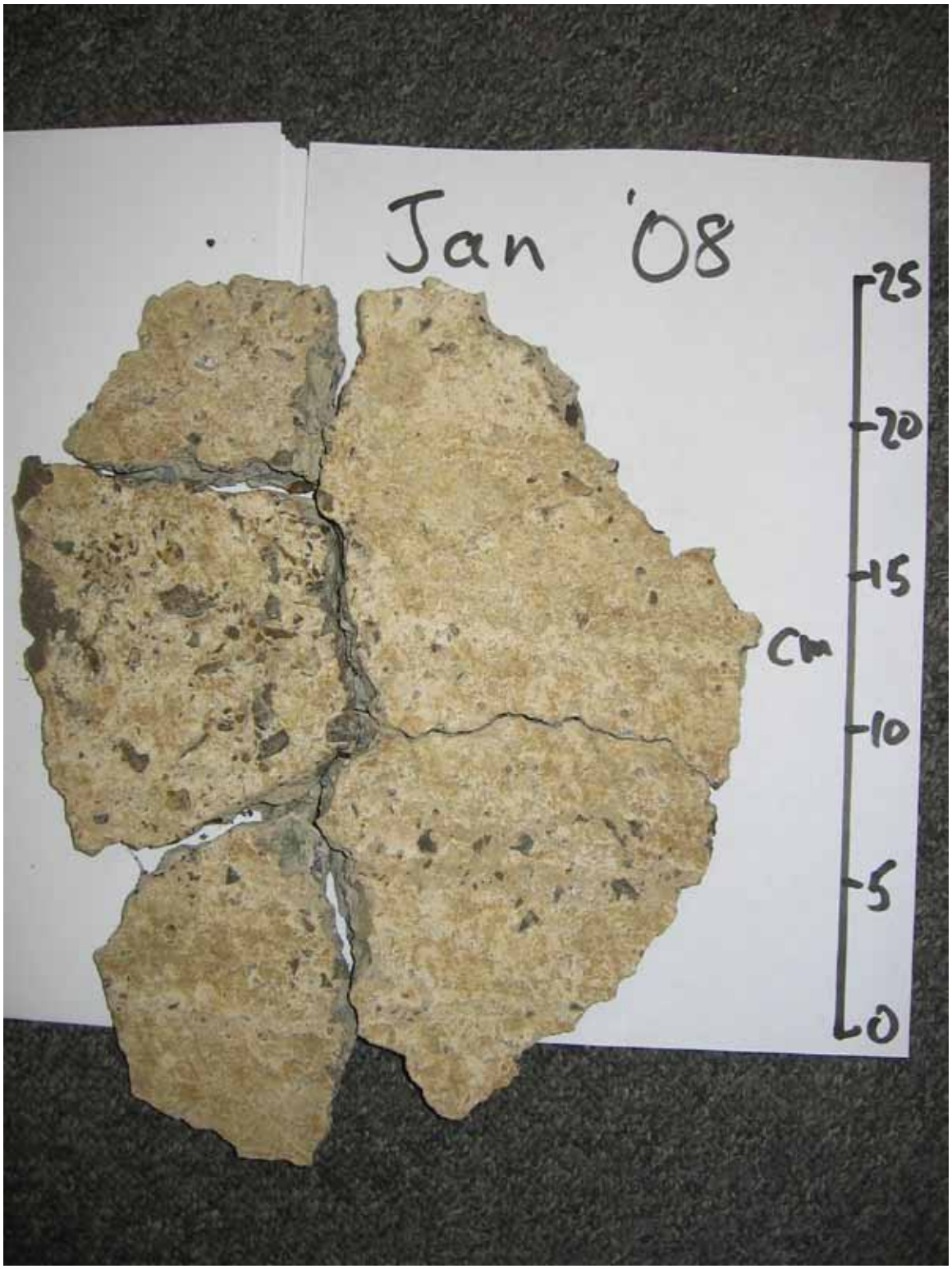
Conclusion:

The spalling of concrete from the stack is demonstrable. It is serious and unpredictable; it could cause a fatal injury. PKC manages the risk with an exclusion zone, a safety canopy and a weekly inspection process. To date, no evidence of fragments beyond the PKC boundary has been detected; however some parties predict that this could happen in a strong wind event.

BASE jumpers are innovative, intelligent, resourceful and determined and have used portable power tools to gain access to the stack. They have caused material damage, our current solution appears robust but is extremely inconvenient to PKC and I am sure they will try again to gain access. I am concerned about the risk they pose to themselves and others.

Ian Wilson
PKC GM & Director

Appendix1

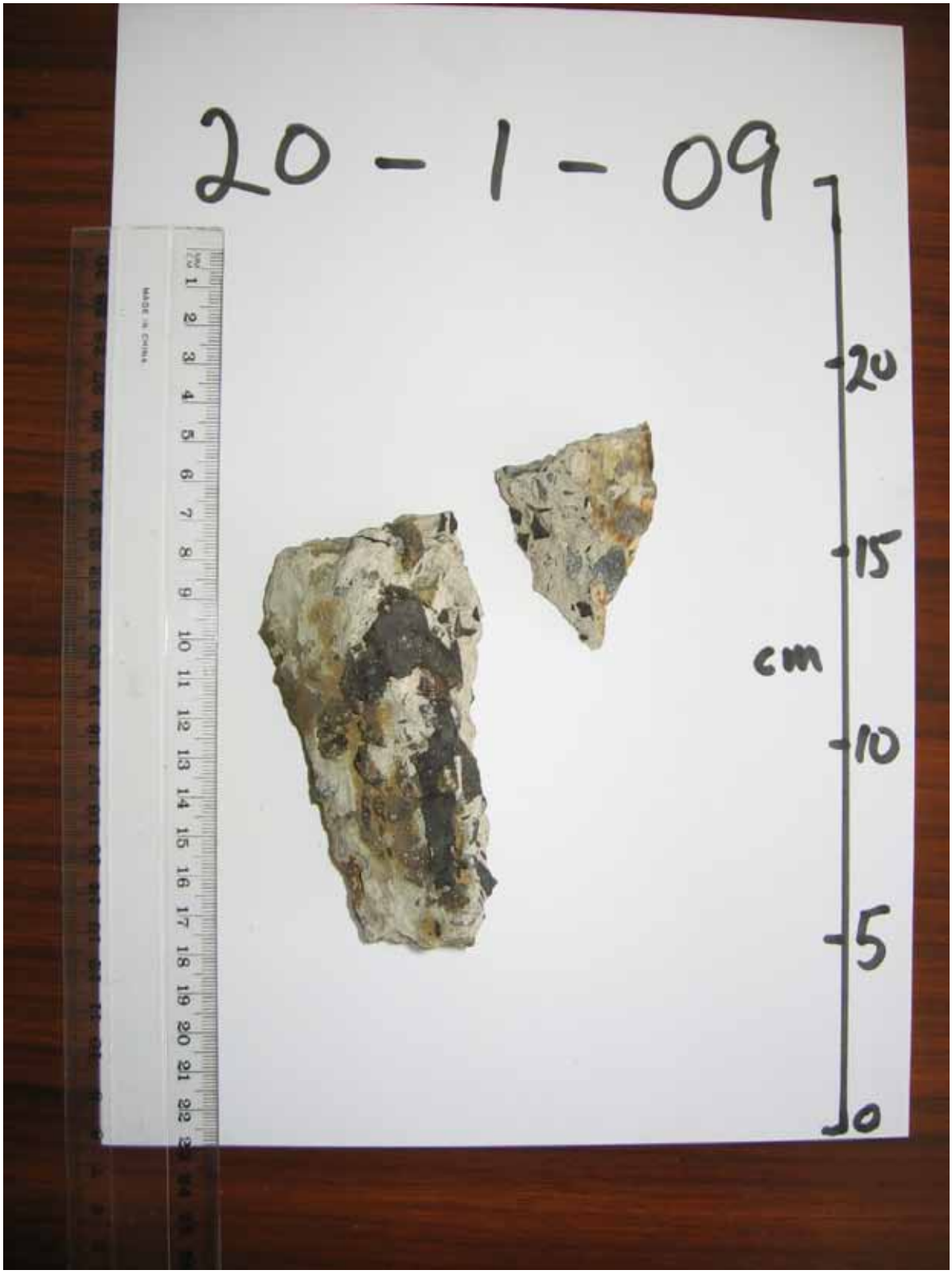


Appendix2

Appendix 3

Appendix 4

Appendix 5



Appendix 6

Appendix 7

Appendix 8

Appendix 9

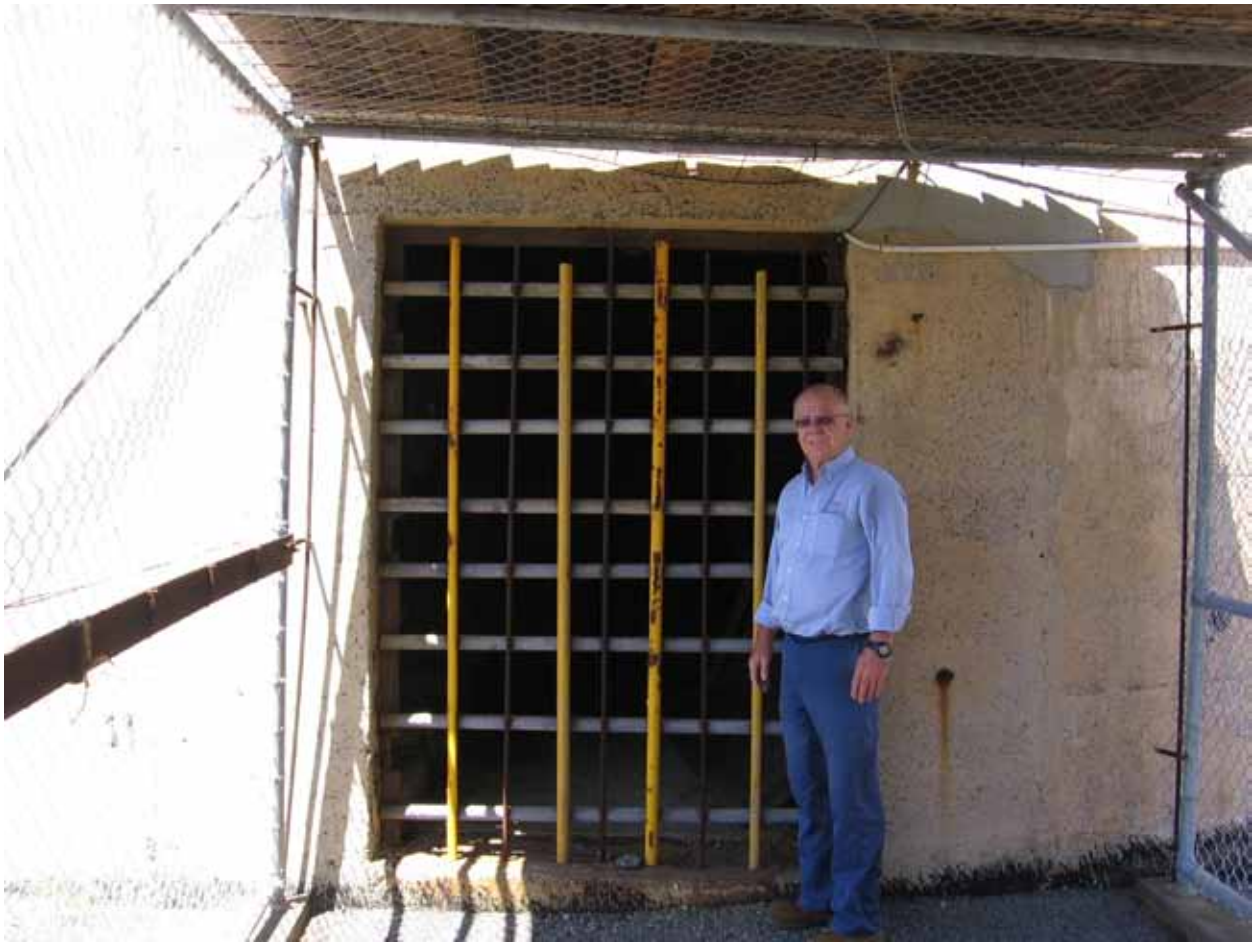
Appendix10

Appendix 11

Appendix12

Appendix 13

Appendix 14



Appendix 15