SUBJECT: DETERMINATION OF THE PRE-DEMOLITION MANAGEMENT PLANS FOR THE PORT KEMBLA COPPER CHIMNEY STACK

1. BACKGROUND

1.1 Approved Project

In 2010, Port Kembla Copper (PKC) received approval from the Deputy Director-General under delegation from the then Minister for Planning to demolish its former copper smelter at Military Road, Port Kembla in the Wollongong Local Government Area (see Figure 1).

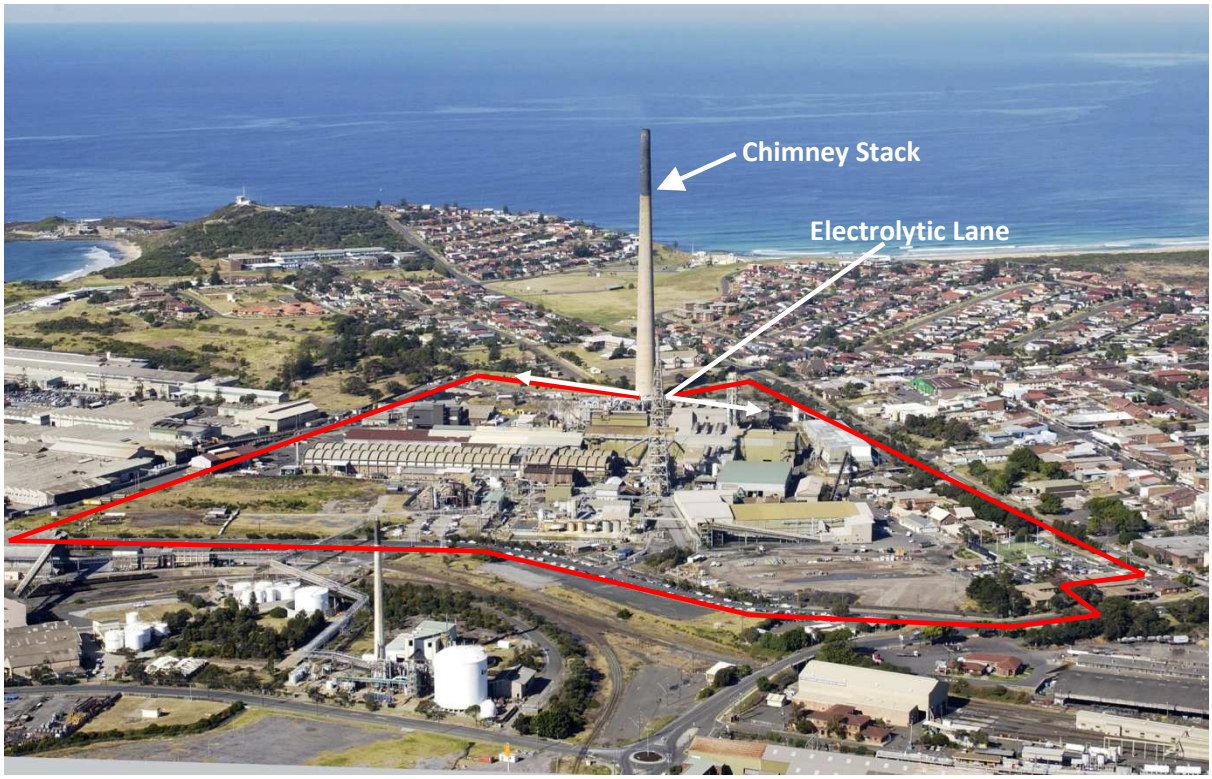


Figure 1: *Port Kembla Copper Site and Chimney Stack*

Copper refining and smelting operations began on the site in 1908 with construction of the chimney stack occurring in 1964. Refining and smelting activities ceased in 2003 and PKC received project approval (08_0191) in 2010 to decommission and demolish the redundant infrastructure including demolition of the 198m chimney stack by controlled explosion. The majority of demolished materials would be recovered and/or recycled.

Demolition of the chimney stack was approved as its deteriorating condition made it a safety concern for on-site workers and members of the public (given it is located 8 metres from Electrolytic Lane, a public road). The stack is affected by corrosion with pieces of concrete peeling off the stack and falling to the ground. In addition, the stack does not meet contemporary standards of design and construction. There are also significant costs associated with repairing and maintaining the stack and the options for adaptive reuse are limited.

As part of the project, PKC and its demolition expert evaluated different demolition methods and determined that the preferred method for demolishing the stack was by controlled explosion. During its assessment of the project, the Department consulted extensively with PKC, its demolition expert, WorkCover NSW (WorkCover), NSW Police and the Illawarra District Emergency Management Group to develop conditions to manage the potential risks associated with demolition by explosion.

The Department also reviewed the circumstances associated with the Canberra Hospital demolition (which resulted in a fatality), to ensure that the demolition method was appropriate and that the stack could be safely demolished.

As a result, key conditions were imposed that require PKC to prepare and implement:

1. a Demolition Management Plan – describing the stack demolition methodology, environmental management controls (e.g. air, noise and vibration, traffic, waste and soil and water) and community notification procedures; and
2. an Evacuation Management Plan – identifying an exclusion zone for evacuation around the stack, procedures for evacuation and a detailed community consultation program.

These plans are herein referred to in this report as the 'pre-demolition management plans'.

The conditions were developed and imposed following close consultation with WorkCover, the Environment Protection Authority (EPA), Wollongong City Council (Council), NSW Police and the Illawarra District Emergency Management Committee. These conditions are shown in full in **Tag B** along with each agencies key role/area of responsibility under the project approval. The pre-demolition management plans must be prepared to the satisfaction of the Director-General, prior to the demolition of the stack to ensure it is undertaken in a safe manner.

1.2 Current Status

Demolition has been on-going on the PKC site for the past two years with the majority of works completed. Two heritage items have been retained on site, the Old Assay Building and the Precious Metals Stack. The 198m chimney stack is one of the last components to be demolished. PKC now proposes to demolish the chimney stack by controlled explosion in accordance with the project approval.

In August 2013, PKC announced that the demolition of the stack would be undertaken on 5 September 2013. PKC had prepared some of the pre-demolition documentation and commenced undertaking building condition (dilapidation) surveys of properties within a 250 metre exclusion zone that it had identified for the demolition.

Community concerns were raised about the potential presence of asbestos and other hazardous materials in the stack, the potential effects of ground borne vibration on properties in the vicinity of the stack, opportunities for building condition surveys of properties within the 250 metre exclusion zone and general compliance with the project approval.

Given the complexities and level of community concern with the demolition of the stack, the Department established a Working Group of key Government agencies including representatives from the Department, the EPA, NSW Police, WorkCover and Council to review the pre-demolition management plans. Each of these agencies has a role under the project approval to be consulted and/or to review the pre-demolition management plans. Subsequently, the Department established the Working Group to ensure that the relevant agencies had an opportunity to inform the development of the pre-demolition management plans and to ensure that any issues could be promptly addressed and considered in a co-ordinated manner. The Department also consulted with NSW Health in relation to specific matters, such as air quality.

Following the initial meeting of the Working Group on 29 August 2013, the Department concluded that the planned date for stack demolition could not proceed on 5 September 2013 until further information was provided to satisfy the requirements of the project approval.

Since 29 August 2013, the Working Group has met formally on 3 separate occasions as part of its review of this documentation and members are in constant contact on the matter out of session. The Working Group has provided substantial feedback to PKC and its consultants on the pre-demolition management plans. On 9 October 2013, PKC submitted its latest version of the revised pre-demolition management plans to the Department and the Working Group for approval.

1.3 Demolition Day and Evacuation Procedures

At the time of writing this report, PKC have been working towards setting a new date for demolition in February 2014, subject to obtaining approval of the pre-demolition management plans from the Department.

In terms of the evacuation procedures, the process would commence at 7am with an initial briefing amongst the emergency service authorities, which would be led by NSW Police. At 7.30am, NSW Police would begin establishing the exclusion zone around stack by creating barriers, with occupants within the exclusion area permitted to leave but not enter. By 8.30am, NSW Police would commence the sequence of withdrawal of residents and businesses within the exclusion zone. All properties within the exclusion zone would be door knocked by officers of the NSW Police and State Emergency Services, Volunteer Rescue Association Members and/or PKC staff, with occupants escorted out of the exclusion zone.

Systems would be utilised to ensure all properties are checked twice. NSW Police would conduct final checks of the PKC site with the assistance of the NSW Police Canine Unit to ensure no individuals are present. NSW Police's PolAir Unit (helicopter) would also conduct checks of the PKC site, exclusion zone and secure the air space in the area.

This sequence is expected to be completed by 10.30am to 11.00am, after which NSW Police would provide clearance to the demolition expert (Sean Miller of Precision Demolition) to allow the demolition to proceed. The demolition expert would then conduct final checks of the demolition systems and processes before the time of detonation which is expected to be between 11:30am to Midday. The stack would then be demolished by controlled fell whereby a 'wedge' would be blown out of the northern (front) section of the stack and a 'cracking charge' detonated on the southern (rear section) of the stack causing it to fall over in a northerly direction in the prepared stack fall zone within the confines of the PKC site. The demolition itself is expected to take a total of 15 seconds to complete.

1.4 Minister's Meeting with Port Kembla Residents

On Thursday 19 September 2013, the Minister met with a delegation of local residents from Port Kembla concerning the proposed demolition of the stack. Key outcomes of this meeting are discussed in detail below.

1. Exhibition
    - The Minister directed the Department to make the pre-demolition management plans publicly available for two weeks, to provide the local community the opportunity to consider and comment on the pre-demolition documents. As such, once the Working Group was generally satisfied with the content of the pre-demolition management plans, the Department publicly exhibited the documents from **Thursday 17 October 2013** to **Thursday 31 October 2013**; and
    - The Minister also directed that the Department consider any submissions received during the public exhibition of the plans, prior to their final approval.
2. Shop Front
    - The Department directed PKC to establish a 'shop front' at the Port Kembla site from the start of the public exhibition of the plans up until the end of November 2013; and
    - The Department also arranged for PKC's staff and technical consultants, and for Government agency representatives of the Working Group to be available at the 'shop front' at specified times leading up to the final date of demolition. This provided members of the community with the opportunity to discuss the proposed plans and to ask questions.
3. Community Group Meeting
    - On Wednesday 30 October 2013, the Department also arranged for the Working Group to meet directly with representatives of community consultation groups already established in the area, including the PKC Community Liaison Group and the Port Kembla Pollution Meeting Group. Some of the members of these groups previously met with the Minister on 19 September 2013.

2. EXHIBTION AND SUBMISSIONS

As directed by the Minister, the Department made the pre-demolition management plans publicly available from **Thursday 17 October 2013** to **Thursday 31 October 2013** (15 days):

- on the Department's website;
- at the Department's Regional Office in Wollongong;
- at Wollongong City Council's administrative office; and
- at PKC's on-site 'shop front'.

The Department also notified the Working Group and advertised the exhibition in the Illawarra Mercury. The Department and PKC also informed the local media of the public exhibition of the pre-demolition management plans by issuing concurrent media releases.

2.1 Public Submissions

Community feedback on the pre-demolition management plans was received via three key channels including the Community Group Meeting on 30 October 2013, the 6 submissions received during exhibition of the pre-demolition management plans and the 17 feedback forms submitted via the 'shop front'. The Department has considered the issues raised by the community in its consideration of the pre-demolition management plans.

A summary of the key issues raised in public submissions is provided below and included:

- the need for landowners (not occupiers) in the exclusion zone to be offered building condition (dilapidation) surveys by PKC, prior to the demolition of the stack;
- the potential for asbestos to be contained within a product labelled as 'flintkote surfacing' on the original construction drawings of the stack in the Stack Demolition Management Plan (SDMP);

- errors in the maps in the Traffic Management Plan, with the omission of some streets;
- the need for at least 2 months notification of the stack demolition date for properties within the exclusion zone, in accordance with PKC's Statement of Commitments (SoCs) included in the project approval;
- general concerns about and/or clarifications sought regarding:
  - potential vibration impacts on the structural integrity of nearby properties;
  - potential asbestos and other pollutants contained within the stack;
  - transparency in the process and provision of documents to the public;
  - provision of information on PKC's website;
  - public consultation and notification by PKC (e.g. notification of persons within the exclusion zone about the demolition, offers for dilapidation surveys, opening of 'shop front' etc);
  - potential impacts on heritage items located on the site; and
  - waste management.

2.2 Agency Submissions

Each Government agency involved in the Working Group reviewed the draft pre-demolition management plans and requested further information or clarification as summarised below. The key roles and responsibilities of each Government agency under the project approval are shown in **Tag B**. These include:

EPA

In its first submission, the EPA requested additional information on dust management measures, including dust suppression controls, potential risks to human health from dust, the level of potential contamination at higher levels of the stack not directly sampled for pollutants and waste generation volumes. The EPA also sought other minor administrative amendments to the plans.

In its latest submission, the EPA noted that the revised Stack Demolition Management Plan (SDMP) had included additional information in response to issues raised by the EPA. The EPA provided additional comments related to procedures for community notification (risks and precautionary measures) and clean up protocols in case of off-site impacts. The EPA also raised issues in relation to the need for further analysis of prevailing winds once a demolition date is determined and the process for classifying waste from the demolished stack.

The Department's consideration of these issues is provided in Section 4 of this report.

WorkCover

WorkCover stated that it had reviewed the qualifications of PKC's preferred demolition expert (Sean Miller of Precision Demolition) and noted that he holds an appropriate 'DE1 Demolition License' (and provided a list of similar jobs completed). WorkCover also noted that it is satisfied that the 'exclusion zone' to be applied by PKC during the stack demolition meets the minimum requirements outlined in *Australian Standard 2601 – Demolition of Structures, 2001*. WorkCover acknowledged that it is available to continue to consult with all relevant parties on the plans as they progress.

Wollongong City Council

The Council advised that its Traffic Management Committee, comprised of representatives from NSW Police, Roads and Maritime Services (RMS) and Council, had endorsed the Traffic Management Plan (TMP). The TMP was recently adopted by a Council resolution on 9 December 2013.

Council also requested that the Department ensure the concerns of the local community (e.g. air, noise, and vibration) are adequately addressed prior to the demolition. In regards to the potential for asbestos within the stack, Council noted that sampling and testing had been carried out by PKC with independent sampling and testing. It further notes that testing had also been undertaken by the EPA and WorkCover, with final clearance being provided by an independent occupational hygienist.

Finally, Council requested that the Department ensure PKC honour its commitment to offer dilapidation surveys for all properties in the exclusion zone and give the community sufficient advance notification of the demolition date (once determined).

Illawarra Local Emergency Management Committee

NSW Police (on behalf of the Illawarra Local Emergency Management Committee and PKC) has prepared the sections of the EMP that detail procedures for evacuation or 'sequence of withdrawal' of residents and businesses in the exclusion zone.

The Illawarra Local Emergency Management Committee (formerly the Illawarra District Emergency Management Committee), which includes representatives from NSW Police and all relevant emergency

services agencies, confirmed that it has been comprehensively consulted in the preparation of the EMP and is satisfied that it addresses all issues relating to emergency management.

The Department
The Department requested that PKC undertake further consultation with relevant Government agencies and address the recommendations of each agency in the final pre-demolition management plans, prior to their exhibition. The Department also requested (among other things) that PKC:

- provide an exclusion zone that meets the requirements of the relevant Australian Standards;
- provide written confirmation from WorkCover to demonstrate that it is satisfied with the size and extent of the exclusion zone and the preferred demolition expert;
- offer dilapidation surveys to all property owners within the final exclusion zone and make these reports available to these persons;
- commission independent peer reviews of the demolition expert's plan (i.e. the *Stack Demolition Process and Techniques Plan*) by a suitably qualified and experienced structural engineer and a suitably qualified and experienced explosives expert;
- include further detail in the plans on asbestos and hazardous materials removal and air, noise and vibration monitoring (e.g. extra ground borne vibration monitors) and management procedures;
- make a clear commitment in the pre-demolition management plans to be responsible for the full costs associated with clean-up, repair, replacement or compensation of any private property of business that is impacted upon by the project; and
- obtain advice from its structural engineer on the structural integrity of the stack to confirm that it would remain standing in a safe manner should the demolition day be delayed until early 2014.

The Department and each Government agency in the Working Group have reviewed the pre-demolition management plans in accordance with the respective roles under the conditions of approval. Each agency is generally satisfied that the information contained within these documents satisfies the requirements of the project approval and would ensure the demolition of the stack is undertaken in a safe and controlled manner, subject to specific requirements (see letters in **Tag C**).

3. RESPONSE TO PUBLIC SUBMISSIONS

On 11 November 2013, PKC provided a response to all public submissions received during the exhibition of the pre-demolition management plans (see **Tag D**). The Department has considered the key issues raised in the submissions, and PKC's responses to these issues, in Section 4 of this report.

4. CONSIDERATION

The Department has reviewed all issues associated with the demolition of the stack as identified in the Director-General's Assessment Report for the project, all issues raised in public submissions and in visitor feedback forms at the 'shop front' and PKC's response to public submissions, in its assessment of the pre-demolition management plans. This assessment has been undertaken in close consultation with all government agencies in the Working Group who have also reviewed the pre-demolition management plans and all issues raised in public submissions.

The pre-demolition management plans are comprised of:

- the Stack Demolition Management Plan (SDMP) dated 29 November 2013 (087663019-R-Rev7a), prepared by Golder Associates (Golder) to satisfy Conditions 13 to 20 of Schedule 3;
- the Stack Demolition Process and Techniques Plan (SDPTP) dated 29 November 2013 (DOC-PD-01 REVISION 3), prepared by Precision Demolition to satisfy Condition 13(c) of Schedule 3; and
- the Evacuation Management Plan (EMP) dated 29 November 2013, prepared by Port Kembla Copper and NSW Police to satisfy Condition 21 of Schedule 3.

It is important to note that certain components of the SDPTP and the EMP were not publicly exhibited as they either contain details on the demolition technique that are the intellectual property of the demolition expert or contain confidential information on NSW Police's procedures for evacuation and 'sequence of withdrawal' of residents and businesses in the exclusion zone.

In accordance with the conditions of the project approval, on 3 August 2013, the Department approved the team of consultants contracted to prepare the pre-demolition management plans. This followed a review of the qualifications and/or experience of each team member (see **Tag E**). The approved team comprised of:

- Golder Associates and Traffic Management Services for the SDMP;
- The Fifth Estate, Catch Communications and NSW Police for the EMP; and

- Precision Demolition for the SDPTP (qualifications and experienced reviewed by WorkCover, see **Tag C**).

A summary of how key impacts and concerns would be managed in accordance with the pre-demolition management plans is provided by key issue below. The Department's assessment of all other issues is provided in Table 1.

4.1 Demolition Technique

The stack is predominantly made of reinforced steel, concrete and bricks. The make-up of the stack is generally comprised of:

- an outer reinforced concrete windshield extending for the entire length of the stack (~15.5m wide by 198m high by 450mm thick);
- an inner concrete shell extending around 120m up the stack (~6.6m wide by 120 high by 190mm thick); and
- an internal brick chimney extending for the entire length of the stack that is supported on 300mm reinforced concrete floors spread around 9m apart.

The Department's assessment of the original project in 2010 concluded that the stack should be demolished because it is showing signs of concrete cancer which represents a significant on and off-site public safety risk through debris falling off the stack (located within 8m of Electrolytic Lane and 50m of the nearest residence). Due to this, there are also significant financial costs associated with initially fixing the chimney stack (around $10 million) and on-going maintenance and liability costs associated with the structure (maintenance around $350,000 every three years). Therefore, demolition of the stack was approved in 2010 based on a detailed merit assessment.

The method for demolishing the 198m chimney stack is by controlled explosion (known as a 'controlled fell') and would be carried out by an industry expert (Sean Miller of Precision Demolition) who holds the appropriate 'DE1 Demolition License' from WorkCover and has previously demolished up to 15 chimney stacks at various industrial sites across NSW and Queensland. Mr Miller is also currently working on the demolition of another stack in South Australia, which is expected to be demolished by the end of 2013.

As required by the project approval, the demolition expert (Sean Miller) has also been endorsed by both the Department and WorkCover to prepare the demolition process and techniques plan (see **Tags C and E**).

The method for demolishing the stack is outlined in full in the SDPTP prepared by Precision Demolition which forms a confidential Appendix of the SDMP. As above, the SDPTP is confidential as it contains details on the demolition technique that are the intellectual property of Precision Demolition and did not form part of the publicly exhibited pre-demolition documentation for this reason.

As outlined in the SDPTP, cartridge explosives would be placed in 934 strategically drilled blast holes placed on the northern (front section) of the base of the stack to create a 'wedge'. A cracking charge would also be placed on the outer shell of the southern (rear section) of the base of the stack. Once detonated, the explosives would cause the stack to fall over in a northerly direction onto the prepared stack fall zone (20 degrees either side of the centre fall line in accordance with *Australian Standard 2601 – Demolition of Structures, 2001,* as shown in Figure 4). The stack would fall within the confines of the smelter site and would be wrapped in chain wire and a heavy geo-fabric material around the area in which the explosives are to be placed to manage fly material. As an additional measure to prevent fly material, 36 x 1,000kg bulka bags filled with sand would also be placed around the rear (southern and western sections) of the stack.

Figure 2: *A Chimney Stack Drilled With Blast Holes, Wrapped in Chain Wire and Geo-Fabric*

The stack fall zone has been prepared so that it is sealed and tiered in three separate levels (tiers) to break up the mass of the stack when it falls This reduces its overall impact on the ground and reduce associated dust and ground borne vibration impacts (see detailed discussion below).

A key finding of the Coroner from the *Bender Inquiry* into the Canberra Hospital demolition (which resulted in a fatality) was that the demolition expert did not consider any independent advice on the demolition technique (e.g. an engineer or explosives expert) to confirm the demolition method was safe.

As such, Precision Demolition engaged Mr Jeff Condon of Tait Condon Pty Ltd (TCH), a suitably qualified and experienced civil engineer, to peer review its blast calculations for the stack demolition in the SDPTP from a structural engineering perspective and prepare a report on the findings of this review. TCH Engineers were supplied construction drawings of the stack from PKC and conducted an inspection of the stack. TCH Engineers concluded that *"back of the stack will provide sufficient resistance to vertical forces, as opposed to the front which will provide no resistance, and form a "hinge" to cause the stack to fall in the desired direction*". TCH Engineers also noted that "*the documentation of the structure made available to us has been better than most other similar projects. The induced overturning moment and resultant hinge stresses caused by the removal of the front wall of the stack are in proportion to those predicted on previous successful projects*". This report is attached in full as an Appendix of the SDPTP.

The TCH Engineers report has also been independently reviewed by Mr Caleb Griffiths of Lateral Thinking Design Pty Ltd, a qualified civil engineer with over 35 years experience specialising in industrial buildings, who found that TCH Engineer's conclusions were acceptable. These findings are attached as an Appendix of the SDPTP.

Mr Nick Elith of TechNick, a qualified mining engineer with over 40 years of specialised experience in explosives technology and commercial blasting operations, was also engaged by Precision Demolition to independently peer review its blast calculations for the stack demolition in the SDPTP from an explosives perspective and prepare a report on the findings of this review. TechNick found that all matters identified in the risk assessment can be adequately managed and reduced to acceptable levels, the blast designs and choice of explosives and initiation types are suitable for purpose and blasting side effects (e.g. fly-rock) can be managed using conventional blast controls. This report is attached in full as an Appendix of the SDPTP.

It is also important to note that Nick Elith was engaged as part of the *Bender Inquiry* into the Canberra Hospital demolition to conduct a post-event examination of the site and prepare a report with expert opinions as to causes of the death and as to whether there were any misfired or unfired explosive charges remaining in the partially collapsed structures.

The Department is satisfied that the demolition would be undertaken by an appropriately qualified and experienced demolition expert that has been reviewed by WorkCover; and that the demolition technique has been independently reviewed by at least two separate experts and deemed appropriate and safe.

4.2 Structural Integrity of the Stack

In August 2013, PKC's demolition expert commenced some preliminary works to prepare the stack for demolition on 5 September 2013. This involved the removal of the aluminium asbestos gaskets which were replaced by 'acro props' at levels 1 to 22 of the internal brick chimney. It also involved the drilling of some holes at the base of the stack for the proposed placement of explosives.

After the stack demolition date was postponed, some community concerns were raised about the structural integrity of the stack given the works that were undertaken to prepare it for demolition. To address these concerns, the Department directed PKC to appoint a qualified structural engineer to provide advice on the structural integrity of the stack.

On 4 November 2013, PKC provided written advice from Mr Jeff Condon, a qualified structural engineer from TCH which states that the stack would remain structurally sound should the demolition day be delayed until early 2014 (see **Tag G**).

Separately, the Department sought its own independent advice from a qualified structural engineer, Mr Michael Fraczak and Mr Richard Green from Taylor Thomson Whitting, which concluded that the *"overall stability of the structure is adequate in complying with Australian Standards until April 2014"* (see **Tag G**).

On review of the advice from PKC's qualified structural engineer and the Department's independent structural engineer, the Department is satisfied that the stack would remain structurally sound until early 2014. However, this matter will need to be revisited should the demolition be further postponed.

4.3 Evacuation Management and Exclusion Zone

During the Department's assessment of the PKC demolition project, extensive consultation was conducted with WorkCover, NSW Police and the Illawarra District Emergency Management Group (IDEMG) in relation to exclusion and evacuation requirements during demolition of the chimney stack. The outcomes of their consultation were incorporated into the conditions of approval, specifically the requirement for an EMP detailing an exclusion zone, to be determined in consultation with WorkCover.

At the Department's request, PKC and its demolition expert consulted with WorkCover concerning the exclusion zone. WorkCover has agreed to the establishment of a 300m exclusion zone from the base of the stack, which meets the minimum requirements (1.5 times the height of the chimney) outlined in *Australian Standard 2601 – Demolition of Structures, 2001*. In addition to compliance with *AS 2601*, a broader exclusion zone is proposed towards the fall zone of the stack (ie to the north) of up to 500m (see Figure 3). This exclusion zone is also larger than the originally proposed 250m in the first draft of the pre-demolition management plans.

WorkCover has advised that it is satisfied with the proposed exclusion zone (see **Tag C**).

The establishment of the exclusion zone will be coordinated by NSW Police who has prepared the procedures for evacuation and 'sequence of withdrawal' of residents and businesses in the exclusion zone as outlined in the EMP.

The Illawarra Local Emergency Management Committee (formerly the Illawarra District Emergency Management Committee), which includes representatives from NSW Police and all relevant emergency services agencies, confirmed that it has been comprehensively consulted in the preparation of the EMP and is satisfied that it addresses all issues relating to emergency management.

With the evacuation procedures implemented by NSW Police, the Department is satisfied that evacuation of the exclusion zone for the stack demolition would be undertaken in a safe and efficient manner, minimising disruption to local residents and businesses.

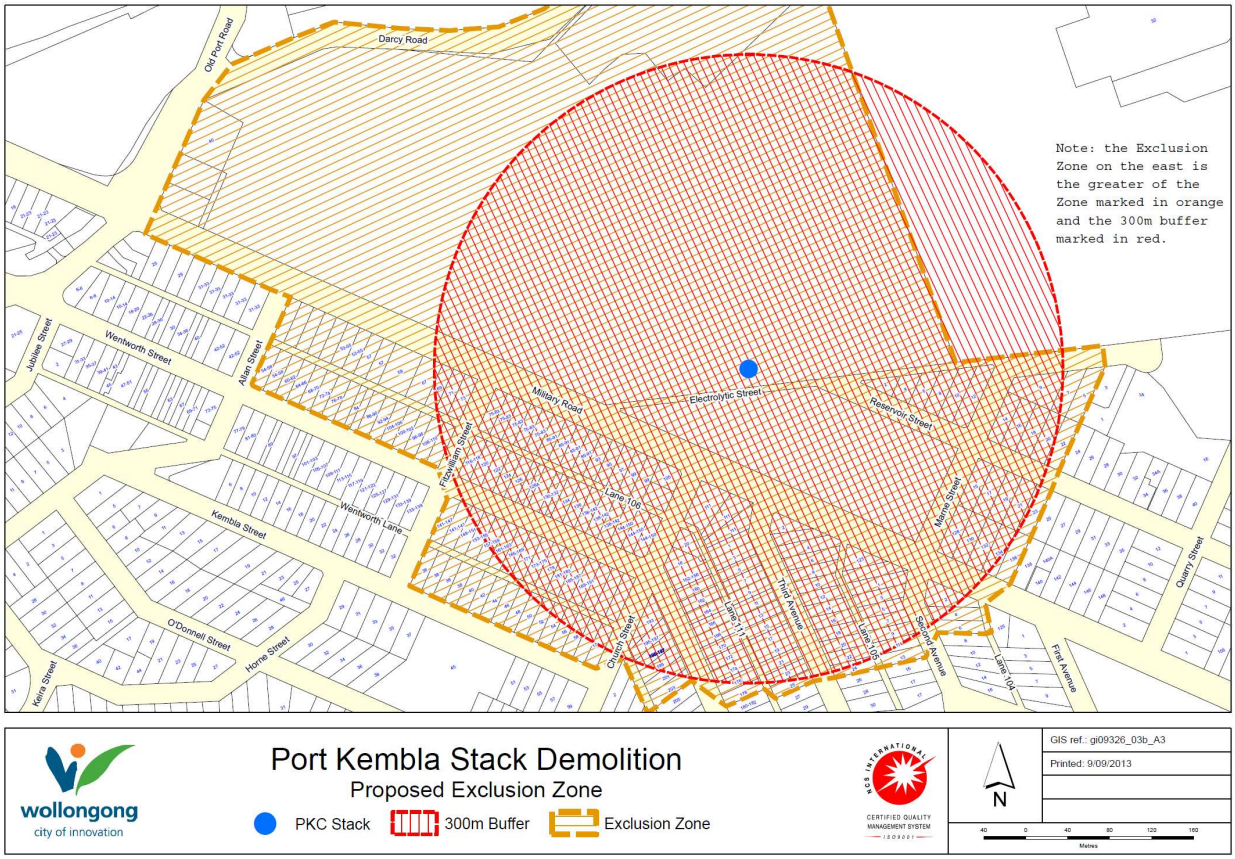


Figure 3: *The Exclusion Zone for the Stack Demolition*

4.4 Asbestos in the Stack

Following project approval in 2010, detailed examination of the engineering drawings for the chimney stack by PKC revealed the presence of asbestos (aluminium asbestos gaskets) in the internal structural supports of the stack (levels 1 to 22). However, this asbestos has now been removed by a qualified expert and the locations sprayed with tackifier. Following inspection, the stack was issued with an asbestos clearance certificate by a certified independent occupational hygienist. Copies of the clearance certificates are available on PKC's website and included in **Tag F**.

Precision Demolition also took two samples of brick contained within the stack and had the samples tested at a NATA accredited laboratory for asbestos. The results of these tests confirmed that the bricks did not contain asbestos.

Notwithstanding the above, the community raised residual concerns about the presence of asbestos in the stack. In response, the Department requested that PKC make the stack accessible for further independent sampling and analysis by WorkCover, the EPA and PKC's environmental consultant (Golder). Samples of the bricks, the concrete shell, and some mortar were taken as a representation of the key materials that make up the stack. All samples were independently tested in NATA accredited laboratories and all results have confirmed that asbestos is not found in these components of the stack.

The results of independent asbestos sampling carried out by WorkCover and the EPA have been made publicly available on the Department's website.

The Department is satisfied that the asbestos removal works have been carried out in accordance with relevant legislation and have been independently verified. Further, the Department is satisfied that asbestos is not contained in those key components of the stack that were sampled and tested by Precision Demolition and Golder and independently verified by WorkCover and the EPA.

Additional concerns were raised in public submissions about the potential for asbestos to be contained within a product labelled as 'Flintkote surfacing' on the original construction drawings which may have been used as a concrete sealant on each internal floor level of the stack.

In its response to submissions report (RTS) on the pre-demolition management plans (see 'Tag D'), PKC understood 'Flintkote' to be a bitumen-based waterproofing paint, which is not to be confused with the

'American Flintkote Company' which was responsible for producing a number of asbestos containing building products (mainly roofing materials) from 1917 to 1987.

Notwithstanding, the Department arranged for an occupational hygienist to enter the Stack and sample this material. The samples were provided to a NATA accredited laboratory which has confirmed that no asbestos was detected in this material (see **Tag F**).

4.5 Other Pollutants in the Stack

The chimney stack on PKC's site at Port Kembla was used from 1965 to 2003 to disperse emissions (mainly metals) generated by smelting operations. As such, sampling and analysis of the bricks in the stack for metals was completed by PKC's consultants (Golder) and the EPA. The methodology for the sampling and analysis was prepared by Golder in consultation with the EPA. This included sampling of:

- the inner bricks of the chimney stack that were exposed to emissions;
- the outer bricks of the chimney stack that were not exposed to emissions; and
- residue scraped from the surface (scale) of the inner bricks of the chimney stack that were exposed to emissions.

The results of this analysis, as outlined in the SDMP, generally found that:

- the concentrations of the majority of metals in the exposed (inner) and unexposed (outer) whole bricks were similar indicating that the mass of contaminants adhered to the brick is likely to be low;
- the concentration of key pollutants of concern such as arsenic, copper, selenium and lead in the residue scraped from the inner bricks were in the order of one magnitude (or higher) than those reported in the whole bricks; and
- the amount of contaminant residue on the inner surface of the stack is limited and strongly adhered to the surface of the bricks (note: the laboratory could not scrape off enough residue for a sample but had to chip it off, suggesting the strength of the bond).

Based on the above, Golder concluded that the mass of metal contaminants in the stack residue is very low, with the majority of metal concentrations similar to those levels found in bricks not exposed to stack emissions. Golder also concluded that as the contaminant residue is strongly adhered to the inner surface of the stack, the potential for this material to break off and become airborne during demolition is limited. Advice from Precision Demolition also indicates that the outer concrete shell of the stack will collapse and envelope (i.e. encase) the inner brick chimney during demolition, further mitigating the potential for dust of the internal walls of the stack to become airborne.

The Department also arranged for further independent sampling of the stack for a range of metals and other anolytes of concern by the EPA. Samples were taken from the inner and outer bricks of the internal brick chimney of the stack. All samples were independently tested in NATA accredited laboratories. The results of these tests (see **Tag F**) found that the concentration of metals and other pollutants in the EPA's samples were consistent with those taken by PKC and its consultants (i.e. Golder). The results of these tests were then used by the EPA to ensure adequate dust (including metals) management measures are in place for the stack demolition in close consultation with PKC's environmental consultant Golder (see Section 4.5). The EPA raised no further issues in relation to the results of testing.

The results of this sampling have also been made publicly available on the Department's website.

It is also important to note that the bricks contained within the stack account for approximately 820 tonnes (t) (i.e. around 8.2%) of the 10,050 t of materials (mainly concrete and steel reinforcement) that were used in its construction (only a portion of which were exposed to emissions during the smelter operations).

The Department is satisfied that the concentrations of metals of interest in the stack are low and can be adequately managed in accordance with best practice dust controls such that potential impacts to the environment and human health can be managed. The dust controls to be applied prior to, during and immediately after the stack demolition to manage potential dust emissions are described in detail below.

4.6 Dust Management

Pre-Demolition

Dust was removed from the internal portions of the stack as part of wash downs conducted in September 2002 and July 2003, prior to the installation of a steel cap over the top of the structure. As above, tackifier was also sprayed around the locations of the aluminium asbestos gaskets following their recent removal to bond any loose materials.

The stack fall zone has also been prepared so that it is sealed with bitumen or a sealant (used as a final coat on compacted road base) to reduce the potential for ground borne dust generation. The stack fall zone would also be thoroughly swept down, cleaned and saturated with water cannons or long cast sprinklers for at least 2 hours prior to the demolition to further minimise the potential for ground borne dust generation.

During Demolition

Prior to, during and after the demolition of the stack, the stack fall zone would be wet down using a combination of water cannons and long cast sprinklers. The indicative dust suppression network is shown in Figure 4 and has been developed by Golder in close consultation with the EPA to represent international best practice for this type of demolition. At present, the dust suppression network comprises:

- 6 x Dust Boss 60 Units (Dust Boss) capable of casting fine water sprays up to 60m depending on water pressure. The Dust Boss Units are situated on portable tripods and can pivot across a 70 degree arc allowing coverage of greater areas; and
- 7 X Nelson Big Gun 100 (Big Gun) sprinklers capable of casting heavy water droplets up to 30 to 50m depending on water pressure (which will be tested during the full scale sprinkler trial). The Big Gun Units are situated on portable tripods and are more limited in terms of pivoting (less than 60 degrees) but allow a higher concentration of water to be focused on point sources of dust.

As can be seen in Figure 4, the Dust Boss Units would generally be evenly spread across the stack fall zone to provide general management of dust while the Big Gun Units would be concentrated on potential point sources of dust emissions where the stack breaks at the base and on each of the three tiers of the stack fall zone.

PKC and Golder recently conducted a partial trial of the sprinklers on site with representatives of the Department and EPA which found the units effective. A full scale trial is to be completed shortly, from which final adjustments to the dust suppression network would be made by PKC in consultation with the EPA. The location of the water cannons and sprinklers would also be adjusted on the day of demolition to take into account wind directions. In the event of rain on the day of demolition it would assist dust suppression.

As a final contingency measure, the establishment of the exclusion zone around the base of the stack during the demolition would also assist in managing dust impacts on individuals should dust migrate off-site. In addition, the conditions of the project approval (and as committed to in the SDMP) also require PKC to clean up any property that is impacted upon by the project to the satisfaction of the Director-General.

Post-Demolition

Once felled, the stack rubble would be wet down utilising the dust suppression network for at least 2 hours immediately after the demolition. These materials would continue to be wet down on an as needs basis as part of general dust management measures employed at the site until crushing and removal of the stack material is complete. This is expected to take up to three weeks. Crushing of stack materials would not be conducted on windy days and would be conducted (where possible) in enclosed buildings on site (e.g. the Bulk Concentrate Store).

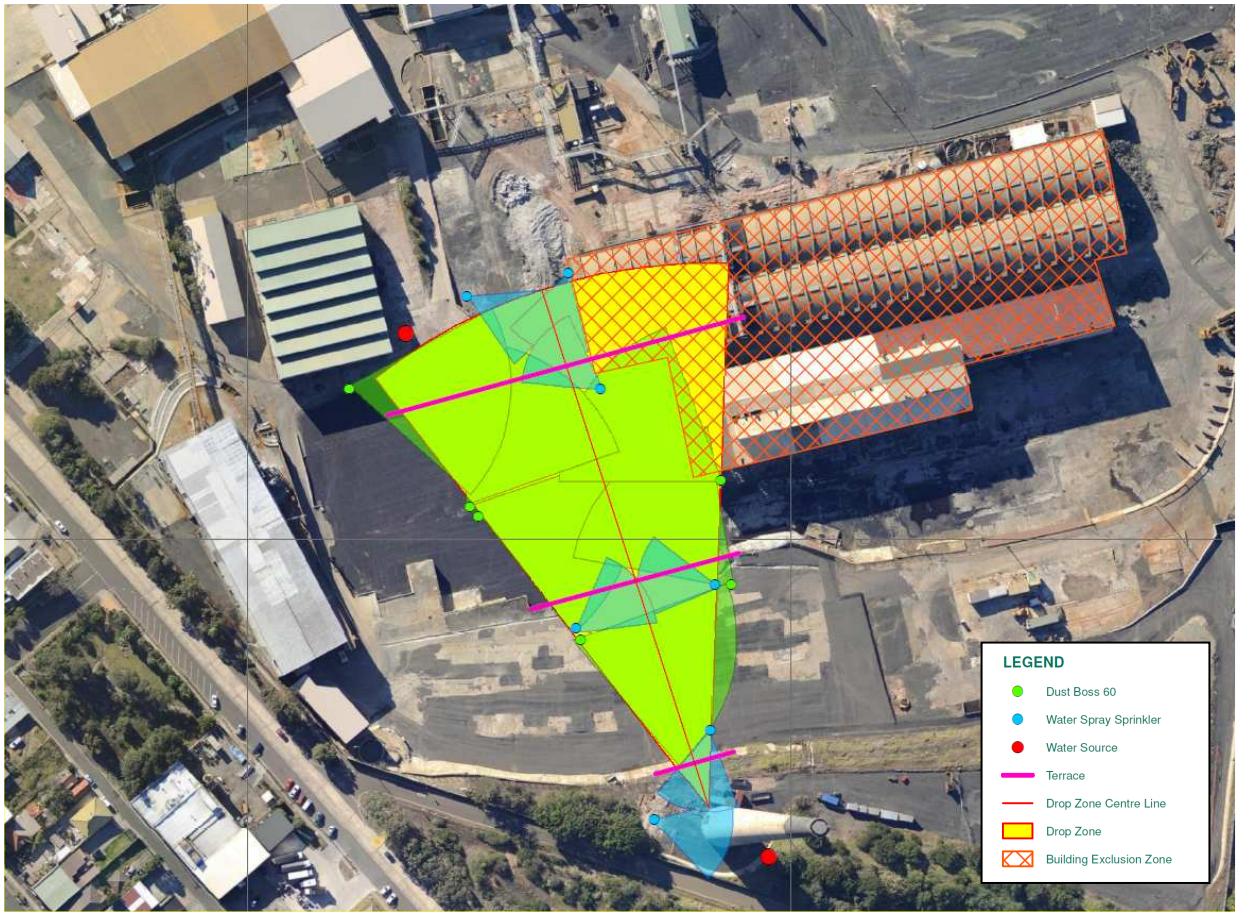


Figure 4: *PKC's Proposed Dust Suppression Network*

Monitoring

The proposed air quality monitoring network for the stack demolition is shown in Figure 5 which includes attended and un-attended dust monitoring at various locations around the stack. The monitors would be used to monitor for particulates (TSP, PM_{10} and $PM_{2.5}$) for various metals of concern and asbestos. Two hand held monitors would also be used on the day with their location to be determined by Golder based on the wind direction and speed on the day.

Contingencies

Contingencies for dust suppression in the unlikely event of: failure of water supply; exceedences of the relevant dust criteria; high and variable winds; or the stack falling away from the planned drop zone have all been considered and addressed in the SDMP.

The EPA acknowledged PKC's commitment to clean up properties impacted by dust as a result of the stack demolition but requested that PKC develop a clean-up protocol prior to demolition to provide the community with clear procedures for cleaning impacted properties.

The Department acknowledges that there could be some off-site dust impacts on properties as a result of the stack demolition, the amount which would be determined by the wind direction and speed on the demolition day. Therefore, the Department recommends that PKC prepare a clean-up protocol prior to demolition to provide the community with a clear understanding of the procedures for cleaning properties that may be impacted upon by the stack demolition. The Department also notes that the conditions of the project approval require PKC to clean up any private property or business to the satisfaction of the Director-General.

To assist in informing the community leading up to the date of demolition (e.g. early warning of residents in case of unfavourable weather conditions and precautionary measures that can be taken such as washing home grown produce post-demolition), PKC has developed a media communications strategy in the SDMP. This strategy includes a number of measures to inform non-English speaking residents who are known to reside in the vicinity of the stack. These include the provision of information brochures translated in Macedonian, Greek and Italian, the provision of translators (if needed) for residents within the exclusion zone and media releases on local non-English radio stations. The Department supports the inclusion of the media strategy in the SDMP and has recommended a condition that it be fine tuned in consultation with the Working Group and NSW Health leading up to the date of demolition in early 2014.

As a final contingency measure, the Department has recommended that PKC establish and fund a Dispute Resolution Panel comprised of a team of suitably qualified and experienced consultant air quality expert (whose appointment are approved by the Director-General) to review and deliberate on any disputed claims for clean-up from dust impacts to properties following the demolition of the stack.

The Department is satisfied that the proposed dust management measures in the SDMP represent current best practice for this type of demolition and that the potential impacts to the environment and human health can be managed to acceptable levels, subject to conditions.

4.7 Noise, Vibration and Overpressure

Noise

Key management and mitigation measures implemented by PKC to minimise noise impacts on sensitive receivers as a result of the stack demolition include advance notification of the local community in Port Kembla, establishment of the exclusion zone and the retention of some existing buildings on site to create a buffer either side of the stack fall zone.

With regard to OH&S, the acceptable level according to WorkCover is 140dB(C) or an LAeq 8h of 85 dB(A) which should be achieved for the duration of the stack demolition event which is expected to take 15 seconds in total. Noise monitoring will be undertaken to verify these levels.

The EPA previously requested some additional information on how noise resulting from the stack impacting with the ground would be controlled and provided advice on noise monitoring device locations. The Department understands that PKC has addressed these issues in the revised pre-demolition management plans. In its review of the final pre-demolition management plans, the EPA raised no further issues in relation to noise.

The Department is therefore satisfied that the stack demolition would result in acceptable noise impacts, especially considering the demolition would be short-term in nature, the local community would be notified well in advance and it would take place mid-week, during the day when most people are at work and at the evacuation locations. Attended and unattended noise monitoring would also be undertaken on the day in order to provide detailed measurements on noise that would be generated.

Vibration and Overpressure

The felling of the stack would create overpressure from the use of explosives and ground borne vibration from the actual impact of the stack hitting the ground. These impacts would also be short-term in nature, lasting around 15 seconds, but have the potential to cause human annoyance and/or structural damage. Overpressure and vibration would be managed by:

- programmed delays in the explosives detonation sequence by several smaller blasts;
- the preparation of the stack fall zone in three ‘stepped’ tiers to spread vibration impacts and intensity rather than a single ‘hit’ and source vibration on the ground;
- wrapping of parts of the Stack in heavy geo-fabric material to reduce overpressure by approximately 10dB;
- placement of 36 x 1,000kg bulka bags filled with sand around the rear (southern and western section) of the stack to control overpressure; and
- establishment of the exclusion zone around the base of the stack to reduce potential cause of harm to humans.

As a result of these measures, the stack demolition is predicted to comply with vibration and overpressure limits for blasting identified in the project approval. These limits are designed to minimise annoyance and discomfort to nearby sensitive receivers.

Ground vibration and its potential to cause structural damage to nearby properties was an issue of particular concern raised in public submissions on the pre-demolition management plans.

Ground Vibration Levels

The closest private property is located approximately 50m from the stack. A ground vibration level of 8.54 millimetres per second (mm/s) and 3.49 mm/s is predicted at a distance of 50 metres (m) and 300m from the base of the stack respectively. Ground vibration from the stack demolition is therefore predicted to comply with the limit in the project approval of 10 mm/s at the nearest private property and at all other private properties in the vicinity of the stack.

As above, this limit is used to protect sensitive receivers from annoyance. In addition, it is important to note that the annoyance criterion for ground vibration is typically more stringent than that for structural

damage and as such, no structural damage impacts to nearby properties are anticipated as a result of the stack felling.

Further, more recent advice received from PKC's structural engineer (TCH) indicates that the ground vibration predictions are likely to be conservative. This is because the calculations are based on:

- a conservative assumption of the mass of the stack (i.e. a mass greater than that indicated on the original construction drawings for the stack); and
- the stack hitting the ground at one single point which would not occur in practice given the stack would break at 2 or 3 sections before hitting the ground (due to the laws of physics) and the stack fall zone has also been prepared as three 'stepped' tiers/levels.

The stack will therefore impact the ground as several smaller impact events rather than one solid impact reducing ground vibration levels.

Despite this advice, over the course of its assessment, the Department also requested that PKC place four additional ground borne vibration and overpressure monitors in the vicinity of the stack to monitor any impacts generated and to assist in addressing any future issues concerning property damage after the demolition event.

As a final contingency measure, PKC's SoCs in the project approval includes a clause in which it commits to 'make good' on any damage to properties within the exclusion zone that is demonstrably linked to the project (see Section 4.8 below). Condition 8 of Schedule 2 of the project approval also requires PKC to be responsible for the full costs associated with repairing, replacing, clean-up or compensation of any private property or business that is impacted upon by the project to the satisfaction of the Director-General.

The proposed noise, vibration and overpressure monitoring network for the stack demolition is shown in Figure 5.

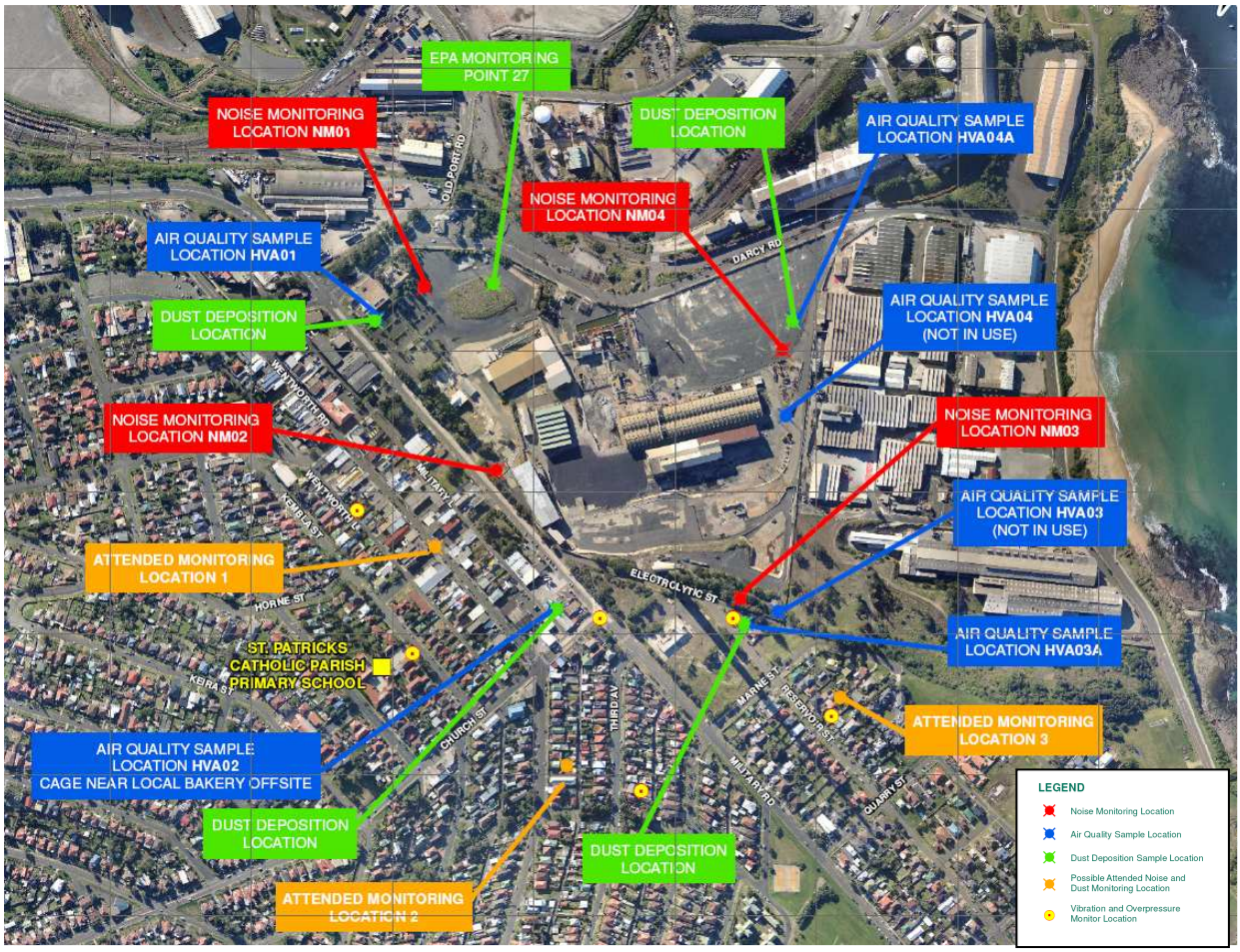


Figure 5: *PKC's Proposed Air Quality, Noise, Vibration and Overpressure Monitoring Network*

In its review of the final pre-demolition management plans, the EPA raised no concerns with vibration and overpressure.

Overall, the Department is satisfied that the noise, vibration and overpressure impacts resulting from the stack demolition would be acceptable and would not result in adverse impacts on nearby sensitive receivers or structural damage to properties. In the unlikely event that structural damage is caused to properties as a result of the stack demolition, the Department is satisfied that suitable measures are in place to ensure properties are repaired by PKC (see Section 4.8 below).

4.8 Dilapidation Reporting

Public Infrastructure

Condition 6 of Schedule 2 of the project approval requires PKC to prepare a dilapidation report on public infrastructure in the vicinity of the site in consultation with Council and submit a copy of this report to the Department, prior to the commencement of any demolition on the site.

A dilapidation report of public infrastructure within a 200m radius of the base of the stack was completed on 14 October 2010 by Formen Pty Ltd on behalf of PKC to allow the demolition of the other dis-used components of the site (excluding the stack) to proceed at that time. On 22 August 2013, Council stated in a written submission to the Department that it was satisfied with the content of the 2010 public infrastructure dilapidation report in regards to the current proposal to demolish the stack.

The Department is therefore satisfied that Condition 6 of Schedule 2 has been satisfied and that the 2010 dilapidation report is still current in terms of documenting the general condition of public infrastructure in the vicinity of the stack. In any case, Condition 6 of Schedule 2 of the project approval requires PKC to repair, or pay the full costs of repairing (or relocating) any infrastructure that is damaged as a result of the project.

Private Property

PKC's SoCs in the project approval includes a clause in which it commits to 'make good' on any damage to properties within the exclusion zone that is demonstrably linked to the project. To be eligible for this provision, PKC commited to offering all property holders within the exclusion zone the opportunity to have a dilapidation survey undertaken of their property by a suitably qualified person to document its pre-demolition condition. In the SDMP, PKC states that it has complied with this commitment.

However, some concern was raised in public submissions that PKC had offered dilapidation surveys to property occupiers (not landowners) in the exclusion zone and that subsequently landowners within the exclusion zone may not be informed of this important information. Similarly, as the exclusion zone was expanded from 250m to 300m, this resulted in additional properties being eligible for dilapidation surveys.

Subsequently, the Department directed PKC to obtain landowner details from Council of all properties within the 300m exclusion zone. PKC has since advised the Department that it has now notified all landowners in the exclusion zone in writing (i.e. letter) of the offers for dilapidation surveys. PKC's letter also includes information which describes the purpose of the surveys to the landowner.

The Department is therefore satisfied that PKC has complied with its SoCs in this regard. The Department is also satisfied that all surveys would be complete, prior to demolition of the stack. In any case, Condition 8 of Schedule 2 of the project approval requires PKC to be responsible for the full costs associated with repairing, replacing, clean-up or compensation of any private property or business that is impacted upon by the project to the satisfaction of the Director-General.

As a final contingency measure, the Department has recommended that PKC establish and fund a Dispute Resolution Panel comprised of a team of suitably qualified and experienced experts, including a structural engineer and building professional (whose appointment are approved by the Director-General), to review and deliberate on any disputed claims for compensation for structural damage to properties following the demolition of the stack, to the satisfaction of the Director-General.

4.9 Traffic Management

Condition 16 of the project approval requires PKC to prepare and implement a Traffic Management Plan (TMP) for stack demolition. The TMP, prepared by Traffic Management Services (TMS) and the Fifth Estate is contained within the SDMP.

Management of traffic during demolition of the stack requires road closures and detour signage to secure the exclusion zone. Personnel from TMS and NSW Police would monitor the road closures to ensure that the area remains free of traffic, until instruction is given by NSW Police and PKC to allow the public back into the exclusion zone.

It is anticipated that road closures would be in place for approximately 4 hours, with mobile electronic signage to notify people when road closures have finished and people and traffic are able to return to the exclusion zone.

The TMP describes:

- the roads that would be closed for the duration of the stack demolition;
- detour routes;
- diversion of the local bus route 43 for the duration of demolition;
- procedures to notify the public of road closures; and
- roles of responsibilities for traffic management on the day of demolition.

Some concern was raised in public submissions about errors in the maps in the exhibited TMP and the omission of some streets.

On 19 November 2013, PKC submitted a revised TMP to Council to address those issues raised in public submissions. The revised TMP also incorporates the additional information requested by Council, and has been prepared in consultation with Council.

This TMP was reviewed by Council's Traffic Management Committee (comprising of representatives from RMS, NSW Police and Council). On 22 November 2013, Council advised the Department that the Traffic Management Committee had endorsed the TMP and recommended that it be adopted by Council resolution. The TMP was recently adopted full Council resolution on 9 December 2013.

The Department is therefore satisfied that the traffic aspects of the proposed stack demolition would be effectively managed by PKC, NSW Police and emergency service agencies.

4.10 Other Issues

The Department's consideration of other relevant issues is provided in Table 1.

Table 1: Department's Assessment of Other Issues

Issue	Assessment
Heritage	• Some concern was raised in public submissions about the potential for the stack demolition to damage existing heritage items on PKC's site (i.e. the Precious Metals Stack and Old Assay Building). • Both heritage items are located outside the stack fall zone and are shielded from fly material by existing buildings on site. • Detailed monitoring and maintenance of existing heritage items on the site would be carried out in accordance with measures detailed in the *Demolition Management Plan* for the demolition of other building structures on site which was approved by the Department in 2010 in consultation with the NSW Heritage Branch. • Such measures include pre and post-demolition dilapidation surveys of the above heritage items to ensure that any damage to these structures can be assessed and repaired post-demolition, and inspection of protective measures to be placed around heritage items by a qualified independent heritage consultant/archaeologist. • The Department has considered the SDMP, the Heritage Management Plan and PKC's response to submissions (see **Tag D**) and is satisfied that the stack demolition is unlikely to result in damage to existing heritage items on site. In the unlikely event of damage to these items occurring as a result of the demolition, PKC would be responsible for any repairs. • PKC has also included a commitment in the SDMP to preserve the base of the stack to a height of 2 metres. This approach was described in the 2010 Demolition Management Plan which (as above) was reviewed by the Heritage Branch and approved by the Department. The Department considers that the retention of the lower portion of the stack, alongside the other remaining heritage buildings, will emphasize the sites former industrial character, and enhance options for the interpretation and understanding of the site for the present community and future generations.
Community Notification	• Some concern was raised in public submissions that residents within the exclusion zone would not be given at least 2 months notification of the demolition date in accordance with the SoCs in the project approval. • As detailed in Section 4.2, the Department is satisfied that the stack is structurally sound to remain on the site until early 2014 when demolition is expected. Therefore, adequate time is available to ensure that the community can be given at least 2 months notification of the demolition date, once the pre-demolition management plans are approved.
Waste Management	• Some concern was raised in public submissions about the management and classification of different types of waste generated as a result of the stack demolition (e.g. hazardous, special and general waste).

	• The EPA requested that PKC develop a waste inventory of the materials contained within the stack to clearly communicate the volumes, types and classifications of waste generated by the stack demolition, in accordance with the EPA's *Waste Classification Guidelines*. This was requested to demonstrate that there are no hazardous or special wastes contained within the stack and to inform waste management practices for the demolition. • PKC and the EPA met directly to discuss these issues. Recent advice from the EPA has indicated further anaylsis will be required on the material once the Stack is felled to determine if any material is suitable for reuse on the site or requires off-site disposal.
Process Transparency	• Some concern was raised in public submissions about a lack of transparency in the process and the public release of documents related to the Port Kembla Demolition Project and the Department's consideration of the pre-demolition management plans. • Key documents such as the Director-General's Assessment Report and Project Approval for the Port Kembla Demolition Project have been publicly available on the Department's website since 2010 when the project was determined. • As outlined in Section 1.3 of this report, although outside the Department's standard practices, the Department publicly exhibited (and sought submissions on) the pre-demolition management plans for a period of two weeks. These plans remain publicly available on the Department's website. • The Department also directed PKC to establish a 'shop front' at the Port Kembla site from the start of the public exhibition to ensure all members of the local community had a chance to review the plans. The Department arranged for representatives of the Working Group to be available at the shop front to answer questions from the community. • At the request of some members of the community, the Department arranged for a number of additional documents (e.g. the 2010 Demolition Management Plan for the other structures on site, the 2011 Heritage Management Plan, PKC's monthly environmental monitoring reports and EPA and WorkCover stack testing results for asbestos) to be made publicly available either on the Department's or PKC's websites (www.stackinfo.com.au). • Certain components of the pre-demolition management plans were not publicly exhibited as they either contain details on the demolition technique that are the intellectual property of the demolition expert or contain confidential and private information on NSW Police's evacuation procedures. • The Department is committed to being open and transparent and is satisfied that it has provided extensive and accessible information to the public on this project and in relation to its consideration of the pre-demolition management plans. • The Department will continue to engage with the local community up until the date of demolition, and where possible, will provide documentation relevant to the project to the public.

5. CONCLUSION

The Department has considered all relevant issues associated with the demolition of the stack as identified in the Director-General's Assessment Report for the project, all issues raised in public submissions and in visitor feedback forms at the 'shop front' and PKC's response to public submissions, in its assessment of the pre-demolition management plans. This assessment has been undertaken in close consultation with all government agencies represented on the Working Group who have also reviewed the pre-demolition management plans and all issues raised in public submissions.

Importantly, the Department has also reviewed the content of PKC's pre-demolition management plans for the demolition of the main chimney stack against the relevant conditions of the project approval to ensure it is undertaken in a safe manner.

This review has concluded that with the implementation of all management and mitigation measures outlined in the pre-demolition management plans, impacts associated with the stack demolition can be mitigated and/or managed to ensure an acceptable level of environmental performance. Under the circumstances, the Department is satisfied that the demolition of the stack can proceed in a safe and controlled manner.

In arriving at this conclusion, the Department has considered a number of key matters including:

- key advice from government agencies in the Working Group such as WorkCover, the EPA, Council and NSW Police;
- independent advice from structural engineering and explosives experts on the proposed blast method and calculations,
- independent sampling of analysis of the stack for asbestos from WorkCover and the EPA; and
- independent structural engineering advice considering the structural stability of the stack to stand safely until early 2014.

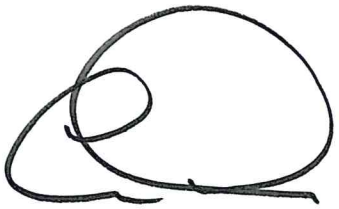
Consequently, the Department recommends that the pre-demolition management plans be approved, subject to the requirements stipulated in the attached letter (see **Tag A**). Whilst approval is recommended, thereby allowing the demolition date to be set, the Department acknowledges that it is imperative to continue to work with PKC and its consultants to fine-tune the plans to respond to any matters that may arise leading up to the demolition date. Importantly, the Department commits to continued consultation with the community leading up to the proposed demolition to ensure the community is aware of the proposed demolition day and the procedures which are to be followed on the day to ensure the demolition is undertaken in a safe and effective manner.

6. RECOMMENDATION

It is recommended that the Director-General:

- **consider** the findings and recommendations of this report;
- **approve** the pre-demolition management plans and set the stack demolition date, subject to the requirements outlined in the letter (see **Tag A**); and
- **sign** the attached letter (refer to **Tag A**).

Chris Ritchie
Industry, Social Projects and Key Sites



13.12.17

Chris Wilson
Executive Director
Development Assessment Systems & Approvals

SHaddad

Sam Haddad
Director-General

14/12/2013

Tag B – Pre-Demolition Management Plan Conditions

Demolition Management Plan (Condition 13, Schedule 3)	Key Agency Role
13. The Proponent shall prepare and implement a Demolition Management Plan for the project to the satisfaction of the Director-General. This plan must:	
(a) be submitted to the Director-General for approval prior to the commencement of any demolition and be prepared in consultation with DECCW, RTA, WorkCover and Council;	**DPI**
(b) be prepared by a suitably qualified and experienced consultant whose appointment has been endorsed by the Director-General;	**DPI**
(c) outline the demolition process for the site, particularly the process and techniques for demolishing the Main Chimney and how this would be managed. The details, technique and management process for demolishing the Main Chimney shall be prepared by a suitably qualified and experienced demolition expert whose appointment has been endorsed by the Director-General and WorkCover;	**DPI, WorkCover**
(d) provide specific details of the proposed demolition process and methods, structures to be demolished, a program for the sequencing of demolition and details of materials handling and management;	**DPI**
(e) provide the strategic context for environmental management of the project;	**DPI, EPA**
(f) identify the statutory requirements that apply to the project;	**DPI**
(g) describe in general how the environmental performance of the project would be monitored and managed;	**DPI, EPA**
(h) describe the procedures that would be implemented to: • keep the local community and relevant agencies informed about the demolition and environmental performance of the project; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the project; • respond to any non-compliance; • manage cumulative impacts; and • respond to emergencies;	**All**
(i) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project; and	**DPI**
(j) include: • Air Quality Management Plan (condition 14); • Noise and Vibration Management Plan (condition 15); • Traffic Management Plan (condition 16); • A Demolition Heritage Management Plan (condition 17); • Soil and Water Management Plan (condition 18); • Waste Management Plan (condition 19); and • Green and Golden Bell Frog Management Plan (condition 20).	**DPI, EPA, Council (for Traffic Management), RMS**

Evacuation Management Plan (Condition 21, Schedule 3)	Key Agency Responsible
21. The Proponent shall prepare and implement an Evacuation Management Plan for the demolition of the Main Chimney to the satisfaction of the Director-General. This plan must:	
(a) be submitted to the Director-General for approval prior to the commencement of any demolition of the Main Chimney;	**DPI**
(b) be prepared by a suitably qualified and experienced consultant whose appointment has been endorsed by the Director-General;	**DPI**

(c)	be prepared in consultation with Council, RTA, NSW Police, Illawarra District Emergency Management Committee and WorkCover;	**DPI**
(d)	identify the proposed exclusion zone to be applied during the demolition of the Main Chimney, including clear plans, maps and aerial photographs of this zone, to the satisfaction of WorkCover;	**DPI, WorkCover**
(e)	detail the proposed process and procedures for the evacuation of any private residents, businesses or workers within the proposed exclusion area;	**NSW Police, Illawarra District Emergency Management Committee**
(f)	identify clear evacuation point(s) where residents, businesses or workers within the exclusion zone would be held during the demolition process;	**NSW Police, Illawarra District Emergency Management Committee**
(g)	estimate the number of people, properties and businesses that would be located within the exclusion zone;	**DPI**
(h)	describe how the evacuation point(s) would be established and managed to facilitate the temporary holding of people from the exclusion area;	**NSW Police, Illawarra District Emergency Management Committee**
(i)	indicate the proposed timeframes for the evacuation process;	**NSW Police, Illawarra District Emergency Management Committee**
(j)	include a community consultation strategy which would inform the local community and nearby land and business owners of the proposal. This strategy should include: 1. details on the procedures for providing information; 2. detailed information on the proposed demolition process and its timing; 3. information on the need for an evacuation, the proposed process to be followed and the timing of when this is proposed to occur and how they would be managed during this time; 4. mechanisms by which feedback can be provided to the Proponent; and 5. procedures for how the Proponent would respond to any enquires or feedback on the proposal.	**DPI**
(k)	demonstrate that all other statutory requirements that apply to the demolition have been complied with.	**DPI**
All costs associated with an evacuation during the project shall be at the full cost of the Proponent.		**DPI**

Tag C – Final Working Group Submissions

Tag D – PKC's Response to Submissions

Tag E – The Department's Endorsement of Consultants

Tag F – PKC, EPA and WorkCover Stack Testing Results
(Asbestos and Other Pollutants)

Tag G – Engineering Advice on the Structural Integrity of the Stack