

# FITZWALTER

PROPERTY CONSULTANTS, DEVELOPMENT & PROJECT MANAGERS

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CCK\_LTR\_DoP\_ReSubmissions\_2111063

21 November, 2006

Ricardo Prieto-Curiel  
Senior Environmental Planner  
GPO Box 39  
NSW 2001

Dear Ricardo,

Thank you for sending the Fitzwalter Group the submissions you have received in response to the exhibition of the Environmental Assessment of the PCCS Site Remediation. Please find attached our final responses to the received submissions.

Should you have any queries in relation to the above please do not hesitate to call on 9211 6633 or 0414 771 244.

Yours sincerely,  
FITZWALTER GROUP



DENNIS ZINES  
Environmental Manager

Annexure: Golder Associates letter – ref. no.06623099/0031 – dated 2 November 2006.

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## 1. Response to Hunter – Central Rivers CMA Submission

PCCS has reviewed the comments and has prepared the following responses:

### Triangular Paddock

It is not possible to leave the Triangular Paddock undisturbed due to its high contamination of Cadmium, Lead and Zinc along with elevated levels of Mercury, Arsenic and Copper. The majority of heavy metal concentrations significantly exceed the NEHF level A and the Provisional Phytotoxicity based investigation levels. Contamination is present in soil and fill materials to depths of between 1 and 1.5 m, as well as in ground and surface water. The groundwater has been adversely impacted. Contaminated materials must be removed to prevent further impact on ground and surface water. Existing vegetation must be scraped to access and remove the contaminated materials. The clearing of the area and remediation processes definitely qualify under the categories of 'improve or maintain' the area in the broader sense.

The Fitzwalter Group will ensure that mitigation of adverse impacts will occur during and post remediation. *Angophora inopina* is not considered a concern on the Triangular Paddock (refer F&F Study on the area). The Triangular Paddock will be subject to rezoning for development that will proceed subsequent to the remediation process. Offsets for the clearing of this specific area will be incorporated into the mitigation measures applied to the new Conservation Area adjacent to the Cardiff West Area, to the upper parts of Munibung Hill that are to be subject to a Management Plan, and to the new landscaping associated with future redevelopment of the remediated lands and the landscaping on the containment cell.

With respect to the comments (five dot points) on the EA report, PCCS will undertake what is practically achievable to meet the requested outcomes, but note a number of the matters are addressed in those dot points are already addressed in the statement of commitments (see Table 8.8 of the EA).

PCCS will also take the Draft Catchment Plan (CAP) into account when considering on-site actions. PCCS welcomes your offer to work with our appointed consultant with respect to the ongoing management and will seek to achieve this at the appropriate time.

Under s.75U of the EP&A Act, no approval is required under s.12 of the Native Vegetation Act to clear native vegetation. The CMA submission appears to assume that a s.12 approval is required.

## **2. Response to MSB Submission dated 4/9/06 and 25/10/06**

The MSB appears to assume that an application to erect a building has been lodged with that organisation. Under s.75V of the EPA Act, any application to the MSB under s.15 of the Mine Subsidence Compensation Act for the erection of a building must not be refused and must be substantially consistent with the Part 3A approval.

The proposed PCCS site remediation can only proceed with the construction of the containment cell.

It is considered that the Minister is the appropriate authority to approve or refuse the proposed works.

It should be noted that in the current detailed cell design being undertaken by Golder Associates, the cell is not to be located over the existing mine workings.

Notwithstanding, it is noted that in paragraph 7.3 of the EA report, as part of the CCCDMP (Appendix 12), that geotechnical consultants detected the existing mine workings were at sufficient depth and the majority of the pillars are of adequate stability so that they would not pose an issue to the containment cell being located over the workings.

PCCS is seeking to gain an exemption from any mining underneath the containment cell.

PCCS has attached a letter from our cell designer (Golder Associates) that recommends "that underground mining beneath the containment cell be prevented to minimise the risk of affecting cell integrity". The suggested construction conditions in the MSB's second submission are therefore not acceptable to PCCS.

It is noted that the possible effects of subsidence of this order will adversely affect the cut-off walls and drains that manage the leachate as well as the capping of the containment cell which controls rainfall infiltration.

Beyond the issues of the cell integrity which are considered sufficient justification, PCCS also understands from a conversation with Paul Gray of MSB that the coal seam underlying the cell is at the northern end of the coal deposit. PCCS interprets this as potentially being of marginal value in terms of the whole resource. In addition, PCCS observes the near proximity of the main rail line as well as Cockle Creek. The combination of these factors suggests that an exemption of mining under the cell would not affect the value of the coal resource in any significant way. The extent of the exemption area can be determined subsequently by an appropriate engineering calculation.

PCCS is very concerned about MSB's proposed condition. In fact, it is possible that the imposition of the condition may threaten to halt the entire remediation project.

### 3. Response to DNR Submission

PCCS considers the DNR's response to be satisfactory.

No further comment is required as the position of the DNR is unchanged from the pre-EA exhibition situation.

### 4. Response to DEC Submission

DEC provided an extensive set of comments in a letter dated 22 September 2006. To facilitate the discussion and with the knowledge and support of DoP, PCCS met with DEC to discuss the response provided. Subsequently on 19 October 2006, DEC provided an amendment and additions to the DEC advice of 22 September which DEC requested be reflected in any approval.

This response addresses the combined advice of both dates. The form of the response is in a table which indicates the DEC commentary on the left and PCCS's response on the right.

<b>DEC Heading</b>	<b>Comments to DoP</b>
1.Introduction	No comment
2. CLM Act Regulation	No comment
3. Site Remediation	<b>Item 1.</b> While PCCS recognises the statutory role of DEC, PCCS does not accept the suggested DEC approval process due to concerns with respect to the construction timetable and additional costs on the basis that there is already an established Auditor's approval role.
	<b>Item 2.</b> No comment noting our comments in Item 1 above.
4. Containment Cell	Preamble – The Concept Design Report discussed two containment cells (co-located) and the EA put forward the proposition of either one containment cell or more than one containment cells. Some of the DEC comments on the EA specifically refer to Cell 2. PCCS requests any reference to Cell 2 to mean if there are two cells, then Cell 2 is the second cell being the cell for smaller volumes of specific materials. However, in the case of there being only one cell, then the DEC reference to Cell 2 means Cell 1.  <b>Item 1.</b> No comment <b>Item 2.</b> No comment <b>Item 3.</b> No comment <b>Item 4.</b> No comment

	<p><b>Item 5.</b> No comment</p> <p><b>Items 6&amp;7.</b> Re revised Fate and Transport model. – PCCS is satisfied with Item 6, but Item 7 should be limited to a single reviewer. PCCS does not accept all of the specialists noted.</p> <p><b>Item 8.</b> No comment</p> <p><b>Item 9.</b> No comment</p> <p><b>Item 10.</b> No comment</p> <p>Rec. 1. No comment</p> <p>Rec. 2. No comment</p>
5. Deep Groundwater Mgt for the Cell	No comment except that PCCS does not wish to restrict other methods for investigating the potential of any connectivity between the shallow and deep aquifer via the inferred fault and the potential impact of this connectivity. Accordingly, PCCS seek that the recommendation for a pumping test not be included as a condition or the words “unless otherwise approved in writing by the DEC” are added.
6. Cell Footprints	PCCS accepts this condition in principle, but the condition should use the data from Fig. 3.1 of the EA, plus the text of Sec. 3.1 (c) and Tables 3.2 and 3.3 (not Figure 1.1 from App. 12).
7. Storage Capacity for cell leachate etc	The polluted water dam should be used to store polluted water. If groundwater from up-gradient is not polluted, it will not be included.
8. Rec. Conditions of Approval	<p><b>In summary</b></p> <p>While PCCS does not disagree with the essence of the principles embodied into these proposed conditions, PCCS does not consider that the conditions are appropriate as they may (and likely will) adversely affect both the design and the construction of the cell. PCCS considers that a “set of guidelines” coupled with meetings with the cell designer would be more appropriate and effective.</p>
8. Rec. Conditions of Approval – detailed comment	<p><b>Item 1</b> The requirement should be that the detailed design and construction be “<b>generally</b>” in accordance with the specified reports. These documents served a specific purpose – to demonstrate the technical and economic feasibility of a containment cell. They succeeded in this. Subsequent final design should be guided by these reports, but should not be bound by them.</p> <p><b>Item 2</b> This item should have the same qualification as for DEC’s amended item 3 – that of staged approvals etc.</p> <p><b>Item 3</b> PCCS accepts the revised condition (but makes the same comment as</p>

in DEC comment 3. Site Remediation above re extra delays).

**Item 4** – Alter “development consent” to “Part 3A” approval.

**Item 5** Discussions between PCCS and DEC reached agreement on this item.

The agreement was for **12 months after design approval for the up-stream works** and 3 years for downstream works unless otherwise agreed in writing by DEC. It is not practical otherwise. The condition applies to the shallow aquifer surrounding the containment cell. PCCS accepts this condition.

The condition as written for the up-stream works to be completed in 3 months after the Part 3A approval is not acceptable.

**PCCS insists that this condition be altered to reflect the above noted agreement.**

**Item 6** No comment

**Item 7** This condition needs review – as indicated earlier, there is probably only one cell. Also, PCCS considers that only the final dam needs lining. The lining design should be determined by the designer. Discussion with DEC canvassed the possibility of constructing the final dam as early as possible. In any case, PCCS requires the words “unless otherwise approved in writing by DEC” be added.

**Item 8** New condition in the latest attachment is acceptable

**Item 9** No comment

**Item 10** No comment

**Item 11** No comment

**Item 12** Agree that this should happen initially, but in time it may be able to be discharged off-site without treatment. Up-gradient water may not be contaminated after Incitec is remediated.

**Item 13** No comment

**Item 14** This requires that any liquids be treated to a spadeable consistency.

**Item 15** No comment

**Items 16-18** The comment here is based on the Maunsell/Coffey assumption that there will be an elevation of leachate in the base of the cell. Current thinking by Golder does not support this assumption. Accordingly, the specified conditions may not apply at all. The design depth of leachate should be based on design and modelling. PCCS requires the words “unless otherwise approved in writing by DEC” added to each item. Note typo “trenches” in item 18.

**Item 19** This condition as amended is still unacceptable as it is too restrictive re construction and progress. PCCS understands that DEC want to be certain that the downstream infrastructure is in place before filling of the

cell can commence. Initially, PCCS will be using the existing dam systems around the cell with enhancements as required by the associated remediation works and as agreed by the Auditor and validator. The final dam may not be built until a later period. The cell construction will have an on-site validator. PCCS will be insisting that the construction is validated before it accepts the work as satisfactory. PCCS can arrange for the validator to directly send DEC copies of the construction validation as soon as practical after it has been achieved.

This approach is practical and acceptable.

PCCS accepts the need to provide “as-built” drawings to DEC, but not to the condition that filling the cell cannot start until DEC has received and approved etc.

Having DEC take the role of validator is not considered appropriate or timely. It is not possible to have a construction crew on standby as would be the case with the DEC suggestions. This condition could significantly delay the cell construction. The cell will be filled as the cell is constructed.

**Item 20** The shipping containers will be a shutter for the concrete encapsulation of the designated materials. Accordingly long term durability is not an issue.

**Item 21** – The capping needs to be based on evaluation of the environmental and health risks as determined by the Auditor. PCCS suggests that the capping be either VENM or inert material or any other that satisfies the above criteria.

**Item 22** New amendment is acceptable.

**Item 23** No comment

**Item 24** The word “proceeding” should be “preceding”.

**Item 25** This requires flow measurement devices and daily resources to measure. PCCS agrees with the submission of a report within 14 months of commencement of placement of cell material. PCCS will install a level monitor in the dam and record daily rainfall via a rain gauge. As indicated earlier, PCCS will initially be using the existing dam systems (which are currently being enhanced by the excavation of sediment from the Hawkes Dams – Hawkes Dam 2 is complete and Hawkes Dam 1 is in progress). Golder will prepare a final dam design early in the cell construction schedule which will be supplied to DEC. Construction of the final dam may not commence until later in the construction schedule for the same reason as for the delay in the downstream drain system (i.e. uncertainty of actual contamination volumes). At all times, PCCS will be seeking to avoid overflows from the site in accordance with DEC recommendation 7 (see above).

<p>9. Groundwater monitoring</p>	<p>General Comment: It is recommended that the assessment of groundwater quality at the site and hence remediation system performance is based upon groundwater contaminant mass flux as well as the contaminant concentration and these are assessed in line with SROH guidelines.</p> <p><b>Item 1</b> No comment – PCCS will adopt</p> <p><b>Item 2</b> It is assumed that this applies to the boundary wells. If so, no comment. Otherwise unacceptable.</p> <p><b>Item 3</b> Groundwater flows downhill and therefore this condition will be satisfied by the monitoring of the Hawkes Dam boundary wells and the surrounding network. This condition is acceptable if it does not impact on the sign-off of remediated lands.</p> <p>The last sentence in the latest DEC amendment “It will also be required ....of the deep aquifer up-gradient of the containment cells.” is inappropriate. PCCS will monitor the deeper aquifer and any future obligations arising there from is a matter outside the scope of this submission. At the current time, PCCS has put forward the premise that the deeper aquifer does not constitute a SROH.</p>
<p>10. Long Term Liability for cell etc</p>	<p>No comment</p>
<p>11. Water</p>	<p>PCCS agrees with the DEC background text, but only seeks to line the final dam.</p> <p>The following discusses the proposed consent conditions.</p> <p><b>Item 1</b> No comment</p> <p><b>Item 2</b> PCCS intend to use the existing catchment dam facilities as long as possible. Where necessary PCCS will build additional dams (for example at the foot of the cell construction) to supplement or replace the existing systems. PCCS agrees in principle with this condition as the existing system copes with average daily rainfall conditions at present. However, there is no need for an additional approval as DEC will approve via the RAWPs (after the Auditor has reviewed).</p> <p><b>Item 3</b> No comment</p> <p><b>Item 4</b> The pumping of contaminated water from dams will be limited by the treatment capacity of the ETP, therefore dams may be likely to retain water after heavy rainfalls.</p> <p><b>Item 5</b> This condition should allow for overflow discharges as may be provided by DEC from time to time (as per condition 2).</p>

	<p><b>Item 6</b> The requirement to line temporary dams on the site to control runoff should be linked to the intended operational life of the dams. These dams will be primarily for the control of sediment migration off site, and should be located in areas where the dam subgrade has yet to be remediated. Potentially contaminated sediment dams should not be located on remediated areas. The long term polluted water dam should have a liner. The design of the dam liner should be based on a design performance relative to the overall design of the site. PCCS accepts this condition as it contains the provisos “where possible” and “unless otherwise approved by DEC”.</p> <p><b>Item 7</b> Agree for final dam, not for other temporary dams.</p> <p><b>Item 8</b> It is not practical to determine the leakage rate of all dams at the site, so it cannot be reported. The seepage rate can be estimated based on modelling of the dams. Contaminated water will be pumped from temporary dams into the main system and will not remain in the temporary dams for too long.</p> <p><b>Item 9</b> PCCS accepts the amended recommendation.</p> <p><b>Item 10</b> No comment</p>
12. Air	PCCS agrees with DEC comments on the EA air sections. PCCS agrees with the proposed consent conditions.
13. Noise and Vibration	<p>PCCS generally agrees with the comments by DEC re the Noise assessment, but notes that apart from the cell, the locus of noise generation changes continually over time and therefore the 26 weeks suggested construction period was a reasonable approach. As indicated in the EA, the areas and order of remediation will likely be subject to change according to prevailing needs. PCCS agrees that each area should be examined in isolation as and when it is being remediated. For example, PCCS is about to monitor the noise levels at CWE to refine the future model for other areas. Area 8 is unlikely to take too long as it is only subject to dust deposition. Otherwise PCCS notes the comments re the temporary noise barriers. PCCS considers that the Noise Impact report overstates the potential impacts. PCCS also notes that the whole smelter was demolished without any neighbourhood complaints. PCCS notes the supportive comments by LMCC in respect of this issue (refer response No.9 later in this document).</p> <p><b>PCCS is very supportive of the DEC suggestions for an On-site Noise Management Plan (NMP) (p.14).</b></p> <p>The following discusses the proposed consent conditions:</p> <p><b>Items 1 &amp; 2</b> No comment</p> <p><b>Item 3</b> PCCS still maintains that + 10 dB(A) is appropriate considering the</p>

	<p>moving area of activities over the period and other site factors as described in the EA.</p> <p><b>Item 4</b> Agree in principle for Areas 2 &amp; 8 only.</p> <p><b>Item 5</b> Agree if this can be incorporated into the NMP on an as needed basis.</p>
14 Conflicts of Use during remediation works	<p>PCCS understands the issue raised by DEC, but notes that the remediation risk for adjacent properties during the excavation works does not increase beyond the starting position. In fact, it probably diminishes since the adjacent areas of interest are already populated where the new development areas are yet to be populated. PCCS acknowledges that as the remediation progresses, the external boundary of the remediation works will get closer to the cell. Timing is a very important factor in consideration of this issue. For example, remediation of Area 8 will not more greatly affect Area 2 than the existing Boolaroo streets. PCCS is open to discussion about practical conditions applicable in these circumstances.</p>
15 LAS	<p>PCCS agrees that the LAS must be accompanied by an agreement between the Administrator and the government and that the site remediation should not proceed without the agreement in place. <b>However, PCCS does not agree that DoP should include a condition of consent re the LAS.</b></p> <p>The remediation of the Smelter Site and surrounding PCCS lands is an entirely different project to the carrying out of the LAS. No nexus exists between the Part 3A project and the LAS and the LAS does not form part of the Part 3A application.</p>
16. EPL	<p>In general terms, PCCS agrees with the DEC text. However, PCCS considers that the EPL needs to be substantially amended or replaced to reflect the activities which are to be approved as part of the Part 3A project. Any such amendment or replacement will be in accordance with the requirements of Part 3A and POEO Act 1997.</p>
17. Community Consultation	<p>PCCS agrees. A Strategy has already been prepared and is currently being reviewed by an independent expert before being supplied to DEC. PCCS also notes that it has been running a successful strategy already which has been meeting the community needs to date.</p>
18. Flora and Fauna	No comment
19. Aboriginal Cultural Heritage	No comment
Other	<b>Item 1 PCCS strenuously objects to the proposal that DoP can make all</b>

	<p><b>documents and information relating to the activities available to the public free of charge.</b> DoP should only be authorised to make information available that is already within their powers or mandate.</p> <p>PCCS should not have its rights under the Freedom of Information Act restricted. No condition should be imposed in relation to the release of the documents and information which is referred to. Any release or disclosure should be undertaken in accordance with the FOI Act.</p> <p><b>Items 2 &amp; 3</b> No comment</p>
Additional conditions proposed by DEC in the amendment to the original response	<p><b>Monitoring of meteorological conditions</b></p> <p>PCCS already has an existing met station. PCCS accepts this condition for a single station (as suggested by DEC by the text Point X).</p>
	<p><b>Remediation plans and remediation goals</b></p> <p>PCCS accepts this condition in principle and supports its intent, but is concerned by the use of the word “no” in relation to recontamination in the last dot point. It is not possible to guarantee this condition. In fact, the air quality assessment is based on having dust impacts meet acceptable criteria – not no dust. PCCS suggests that there be no recontamination that threatens the reuse of remediated land for its intended purpose. In any case, the current use of “no” is <b>not acceptable</b>.</p>
	<p><b>Remediation Master Plan</b></p> <p>PCCS supports this condition.</p>

## 5. Response to Hunter New England Population Health Submission

PCCS notes the HNEPHS's response and will apply it to the remediation process.

## 6. Response to Nu-Rock Submission

PCCS notes that Nu-Rock objects to the proposal using nine headings plus a conclusion. This response addresses each of the headings in turn to obtain a 1:1 correspondence.

1. The exact source of the statement is unclear as it refers to the RAP whereas we understand the submissions should deal with the EA. In any case, the EA clearly states that the project is one of Site Remediation and also provides grounds on how it addresses the Remediation Order (RO). Construction and operation of the containment

cell will clearly constitute “remediation” within the meaning of that term under the Contaminated Land Management Act. The assertion that the proposed activities do not satisfy the RO is rejected as being incorrect and unsubstantiated.

2. PCCS agrees with the assertion that the site will be stabilised. This is a very important outcome to ensure that there are no long term adverse environmental impacts. Ongoing monitoring and maintenance of remediation sites is common practice and the EA encompasses measures to achieve this. PCCS rejects the assertion that the site will become a ‘wasteland’. In fact, the proposed project is the only reasonable means by which the site can be remediated and put to new use.

3. PCCS agrees that the air quality is substantially better than when the smelter was operating. PCCS has made this point publicly on many occasions including through the newsletter which include details of dust monitoring results.

Notwithstanding this situation, the PCCS site still contains materials that could give rise to contaminated dust off-site. This situation is to be substantially improved by the remediation such that there will effectively be no off-site contaminated dust issues after the remediation is complete. The EA contains details and analyses prepared by an internationally recognised expert on how the dust is to be managed to acceptable levels over the remediation period. PCCS does not understand what is being referred to in the quote “The use of conventional earthmoving equipment could halve that” nor in the other sections of this point of objection.

The objection is confusing. PCCS will as a matter of course attempt to minimise any off-site dust impacts during the remediation. Indeed, this is stated in the project commitments.

4. Proceeds from the sale of land are being put toward the remediation of the site. The Nu-Rock suggestion that the major contamination issue (assumed to be the monolith from the comments in objection 2) is being increased by “unnecessary contamination” presumably refers to the proposed LAS program. The authorities consider that the benefits obtained by the local property owners from the LAS program far outweigh the on-site consequences to the containment cell.
5. The resolution of this matter will be advanced once the ongoing management / operational requirements are known.
6. Objection 6 refers again to the RAP (presumably the EA) and suggests that the remediation project is relying on the long term use of HDPE. HDPE is currently used to cover the two main slag stockpiles and some smaller stockpiles. The use of HDPE for these purposes is only a temporary situation until the various stockpiles are consolidated into the containment cell. The Concept cell design potentially envisaged the retention of the HDPE on top of the monolith. This may not occur in the final design. In any case, the capping design for the cell is not reliant on this HDPE layer. The objection that the design relies on the long term use of HDPE is incorrect.

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7. The observation that the cell will occupy land that would otherwise be available for other uses is evident, but overlooks the costs, environmental and other issues involved with remediating the particular area and transferring the contamination to another site. The remediation process considered all other alternatives and assessed that the proposed project as being the most appropriate for the PCCS site.
8. Objection 8 is a re-statement of objection 4 but also includes commentary on vegetation on the cell. This issue was flagged in the EA with recognition that short-rooted plants would be needed to prevent interference with the cell capping. This issue will be addressed in more detail in the final landscaping design.
9. The RAP for the site included the necessary step of considering all alternatives in a formal way including comparing outcomes and costs. The remediation project as described in the EA was clearly identified as the preferred project.

Prior to the smelter closing PCCS spent some time working with Nu-Rock personnel examining potential uses for the smelter waste materials. The primary aim was to assist in the on-site reuse of materials by making briquettes for recycle to the furnace from the dross on site. Nu-Rock at that time had a small demonstration plant in Sydney where they had a (patented) chemical blending process that could also create bricks or pavers from ground slag (or dross type materials). Nu-Rock were focusing on setting up a block making plant from fly ash at one of the power stations and then a paver type plant making reconstituted sandstone type products. There were a number of tests undertaken, but interest waned on both sides and contact was lost. PCCS is not aware of any success with these initiatives.

The type of product envisaged for the slag falls into a "slag in concrete type issue". It is unlikely that people will buy pavers for their backyards that contain 1-2% lead despite any testing when lead-free alternatives are available for similar or lower prices. The key consideration for PCCS is that this "concept" has no proven consumer or authority acceptance and there is no financial data which presents a compelling case. Also, the monolith being cast slag would require additional energy in grinding to small enough particles for use. Obviously, the concept would not be applicable to the contaminated soil that is the other large part of the volume of contaminated material on site. As PCCS understand it, this means that the Nu-Rock concept would only apply to the ISF slag which is only part of the contamination volume.

Accordingly the Nu-Rock suggestion that their technology would "leave the site completely remediated" is understood to be incorrect.

## **CONCLUSION**

The conclusions drawn by Nu-Rock are unsubstantiated comments. There is no suggestion in the remediation project that either the State or local government will inherit a "costly legacy". Furthermore, Nu-Rock appears not to understand the extent of the on-site

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contamination and the differences in the required solutions and their claims of their technology achieving a similar budget for the total site clean-up are unsubstantiated and not demonstrated by any success in the years when the smelter was operating. For example, beyond there being a market for the product, there is no consideration of the time required for all of the slag material to be sold or the extent of on-site works or the effect on the remediation of the other materials which are unsuited for the Nu-Rock concept. Finally, the PCCS remediation project is seen to present much lower risks and much more certainty than anything suggested by Nu-Rock.

## **7. Response to Heritage Office – Department of Planning**

PCCS notes and accepts the Heritage Office comments.

## **8. Response to Department of Planning Questions**

**Question1.** Jig system. The proposal seeks for the continued approval of the operation of the existing jig on the PCCS Lands to extract lead from lead slag stockpiles.

- It is understood that PCCS intends to operate the jig system for 2-3 years subject to its commercial feasibility (to about 2009)

- What do the current jig operations involve? what interactions/impacts will the jig operations have on the remediation activities? (traffic, dust generation, water management, etc)

**Answer 1** – PCCS is currently operating the jig which involves taking slag from the ISF slag stockpile by front-end loader to the jig location which is near the southern tip of the monolith. The ISF slag is put onto a short conveyor belt which conveys the slag into a vibrating gravity separator (the jig). The heavier lead particles are taken off the base of the jig, with the treated slag being taken by front-end loader to a slag stockpile abutting the monolith. The on-site traffic is very slight. Lead product is taken by truck to Port Pirie for lead recovery. This involves about 1 truck per week (or less) on average. The jig is a wet process, so there is little dust generated. Open slag stockpiles are kept moist, also minimising dust. Recent air quality monitoring confirmed very low dust levels. Process water is recycled into the Hawkes Dam system, and therefore does not create any off-site impacts.

The jig operation is only marginally profitable, but also has the benefit of reducing the amount of lead on site. The current thinking is to keep running the jig for the present, although it can be stopped at any time.

The current plans for the cell construction involve using some of the ISF slag (either treated or untreated) as a base drainage layer. Initially this will be from the treated slag, but later may come from the ISF stockpile. Cell construction will start to the south-east and east of the monolith, so that the jig operation can continue during this period without interruption to cell construction activities. After these areas are filled, the cell construction will advance towards the ISF stockpile. Should this cause any on-site traffic issues, then the jig operation will be halted so as to not impede the cell construction.

Because the impacts of the jig operation are so minor by themselves, the cumulative effects with the cell construction and the other excavation activities will be negligible.

**Question 2.** RES (2005b) recommended 3 pumped wells in the deep aquifer at HD boundary. The recommendation was endorsed by the Site Auditor and the DEC which allowed the installation to proceed. According to the EA later drilling during the installation of the pumped wells identified the presence of flow through the shallow aquifer at the HD boundary and the installed system was altered to pump the shallow aquifer at the both boundaries. Was the decision to change the pumping arrangement at the HD boundary (from pumping the deep aquifer to pumping the shallow aquifer) endorsed by the Site Auditor? if not, how that decision was made?

**Answer 2.** - The only reason that RES recommended pumping from the deeper aquifer was because the earlier CH2M Hill bores in the shallow aquifer at Hawkes Dam had only revealed traces of groundwater. This was an unusual finding and not expected from either the Hydrogeological model or common sense. When RES started drilling at Hawkes Dam, planning to intersect the deeper aquifer, they encountered strong evidence of the expected shallow aquifer. The issue of pumping from the shallow aquifer instead of the deeper aquifer was discussed informally with the Site Auditor and DEC at the time that RES was in the field and was accepted as being the more sensible approach.

RES has recently completed all of the fieldwork and reporting associated with the boundary well installations and this has been provided to the Site Auditor for his formal review. After his sign-off, the full documentation will be supplied to DEC. The groundwater control measures are an ongoing process until after the remediation is complete. PCCS is also preparing an Interim Groundwater Management Plan (IGMP) to cover the period from now until remediation completion (as per the Site Audit Report and Statement). Thus, if the Site Auditor or DEC requires further work, then they will use the IGMP mechanism to achieve the desired outcomes.

**Question 3.** The EA indicates that the containment cell will have sufficient capacity to enable the receipt of at least some contaminated material from the Incitec Site. Is there an estimate or is

there a maximum volume from Incitec that can be accepted based on the conceptual model design?

**Answer 3** – The volume and footprint requested for the cell in the EA provides a buffer capacity for additional volumes of materials beyond those currently specified from the PCCS site or the LAS program. Assuming that PCCS did not need this spare capacity then the spare space could be allocated to Incitec if that was what both PCCS and Incitec wanted. While there are limited communications with Incitec, PCCS does not have an official estimate of the Incitec volumes. Moreover, the current understanding of the situation is that Incitec will likely undertake their site's remediation on the Incitec site to avoid a share of the liability for the PCCS cell.

**Question 4.** Site Management Plan for Munibung Hill and certain areas of the Main Site. What are the contamination levels in these areas? What will the Site Management Plan cover? How does PCCS propose to manage the Site Management Plan in the long term?

**Answer 4** – The areas included in this category are the new Conservation Zone adjoining the CWE area, those steep areas above area 6 to the ridge of Munibung Hill and the steep areas above the proposed development areas in area 5 (Boolaroo Heights).

The contamination in these areas has arisen solely from airborne dust deposition over the years. Dilution of the dust deposition would have occurred due to the effects of rain washing loose dust particles down the steeper areas of the hill.

These areas in general are too steep for development and also have characteristics of thin soil cover and are potentially geotechnically unstable. As such, they are expected to be used as a combination of conservation and recreation.

PCCS intends to develop a Site Management Plan with environmental consultants and in conjunction with LMCC and the CMA. PCCS notes that the new sub-division in Macquarie Hills (partly adjoining the PCCS Lands) is subject to a management plan for a period of 5 years, after which time the land will be dedicated to LMCC. It is possible that the PCCS Lands may be treated in a similar fashion.

**Question 5.** Proposed Effluent Treatment Plant. Any details of this plant at this stage? capacity, type of treatment, quality of treated wastewater? or will these details be part of the detailed design of the project.

**Answer 5** – The existing ETP is based on a two stage chemical addition where the pH is raised to convert the soluble metal to insoluble hydroxides and sulphides which then precipitate out.

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The metal removal is over 99% for the major metals and the effluent quality is very acceptable. The existing ETP will run as long as possible prior to the cell closure. This will allow almost all effluents from the open cell to be handled in the existing ETP.

The design of the new ETP will occur much later in the remediation schedule. The theory is that the containment measures for the finished cell will make the flows entering and leaving the cell very limited. This will allow a relatively small new ETP. It is expected that any leachate generated would have small amounts of metals (neutral leach conditions in the cell) with similar constituents as is the case now. It is likely that the same ETP processes will be used, although the cell design will review all possible proven processes. PCCS would expect that sampling of effluent from the cell during its construction will give a good guide to the quality of the effluent to be treated.

The quality of the effluent from the new ETP is expected to be able to be discharged to sewer (subject to agreement with the local authority). Possibilities for reuse or discharge to the creek are other alternatives that will also be explored as part of the later design steps.

## **9. Response to Lake Macquarie City Council's Submission**

### **Site Contamination Remediation and Management**

Paragraph 1 of the LMCC letter notes that the site remediation relates only to the site (*meaning the PCCS Lands*) and not to the remediation of Cockle Creek sediments which was included in the RO. This is correct and in accordance with the RO. The RO uses the word 'site' in a broad sense, but specifically refers to the "premises" which is equivalent to Lot 201 DP 805914. The RO requires PCCS to remediate the premises. PCCS assumes that this paragraph is an observation.

In summary, LMCC notes that the main points for Council to be concerned about are the long term management of the cell and associated infrastructure including monitoring responsibilities, and the responsibility and funding for these items and actions. Council reiterates that it does not need nor want these responsibilities in the future, particularly if insufficient funds are available.

PCCS points out that these issues were part of the Key Issues associated with the Director-General's Requirements and that both Planning and DEC have raised the same issues as Council. The EA sets out the principles and approaches that PCCS will use to reach a satisfactory outcome to address these matters.

In respect of the LMCC comments on groundwater emissions, PCCS notes that there have been extensive investigations which support the premises being put forward by PCCS. In addition, PCCS must demonstrate to the Site Auditor and the DEC that the groundwater issues are resolved to their satisfaction before monitoring will cease.

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PCCS can confirm that it has not at this stage contacted the Hunter Water Corporation in respect of discharge to their sewer. This will be done in the future. The EA notes this as one option and the project is not reliant on this outcome.

**Acoustics**

PCCS is appreciative of the support that the LMCC has for the proposed noise and vibration management plan and will provide the Council comments on this matter to DEC.

**Traffic**

PCCS will take on board the issues of traffic raised by the Council and will also look to using the newly proposed intersection location appropriately in the future.

**Annexure: Golder Associates letter – ref. no.06623099/0031  
Dated 2 November 2006.**

**Golder Associates Pty Ltd**  
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2 November 2006

06623099 / 0031

Fitzwalter Group Pty Ltd  
633 Harris Street  
Ultimo NSW 2007

Attention: Mr Dennis Zines

**BUILDING APPLICATION NO TBA06-05230L4, LOT 201 DP 805914 BOOLAROO  
NSW MINE SUBSIDENCE BOARD RESPONSE**

We have reviewed the NSW Mine Subsidence Board's response (dated 25 October 2006, ref FN70-04444LO) to the building application for the remediation works and contaminated material containment cell at the Site.

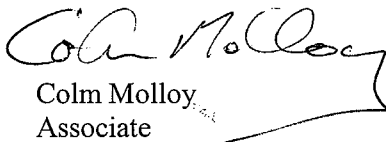
The NSW Mine Subsidence Board require that certification be provided that the cell design and construction will not be damaged by mine subsidence including maximum vertical subsidence of 200mm, maximum ground strains of 2mm/m and maximum tilt of 2 mm/m.


Currently we are undertaking the design of the containment cell and the groundwater control measures associated with the cell. The cell design at this stage is anticipated to comprise upgradient groundwater control measures, a downstream seepage collection system, and a cap over the filled cell. The design concept of the cell relies upon groundwater control, and hydraulic separation of the shallow and deep aquifers at the Site. The seepage collection system is proposed to intercept the upper aquifer only. Mine subsidence and strains resulting from mining beneath this cell could result in increase of hydraulic connectivity between aquifers due to fracturing of the rock mass. Such changes to the hydrogeology could reduce the effectiveness of the proposed design.

We therefore recommend that underground mining beneath this containment cell be prevented to minimise the risk of affecting cell integrity.

Yours sincerely

**GOLDER ASSOCIATES PTY LTD**

  
Colm Molloy  
Associate

  
Fred Gassner  
Principal

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