

ASSESSMENT REPORT

Section 75W Modification Pasminco Remediation, Boolaroo (MP 06_0184 MOD 5)

1. BACKGROUND

Pasminco Cockle Creek Smelter Pty Ltd (Pasminco) operated a lead and zinc smelter at Boolaroo, in the Lake Macquarie local government area for over 100 years (see Figure 1). Pasminco was placed into voluntary administration on 19 September 2001 and Ferrier Hodgson (Ferrier) was appointed Deed Administrators in October 2002. The smelter subsequently closed on the 12 September 2003.

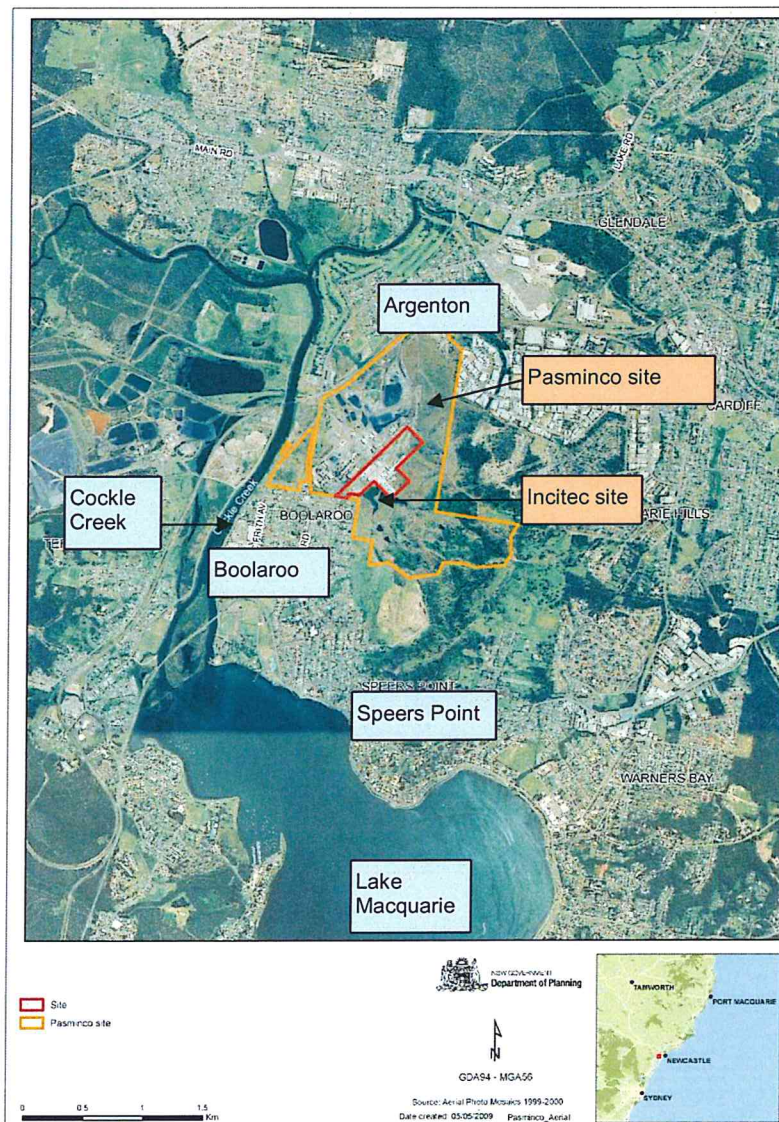


Figure 1: Site Location

Industrial operations at the site resulted in the contamination of soil, groundwater and surface water. The main contaminants include heavy metals such as lead, cadmium and zinc.

On 10 September 2002, the Environment Protection Authority (EPA) declared the Pasminco site, together with parts of the bed of Cockle Creek and Cockle Bay, a “remediation site” under section 21 of the *Contaminated Land Management Act 1997* (CLM Act). Figure 1 depicts the scale of the site (outlined in orange).

1.1 Surrounding land use

The Pasminco site surrounds another contaminated site which is managed by Incitec Fertilizers Limited (Incitec) – see Figure 1. The Incitec site was previously part of the Pasminco site and contains similar contaminants.

Residential areas are located to the north at Argenton (around 800m from the northern site boundary), Macquarie Hills (around 550m from the eastern site boundary) and south at Boolaroo (located adjacent to the southern boundary of the site). The Cardiff Industrial Estate lies approximately 500m to the north-east of the site and is characterised by large light industrial allotments. Cockle Creek, which discharges to Lake Macquarie, is located roughly 600 to 800m to the west of the site.

When operational, Pasminco also caused contamination of properties surrounding the site through stack and fugitive dust emissions and the use of waste slag as filling material.

1.2 Pasminco remediation works (MP 06_0184)

On 24 February 2007, the then Minister for Planning approved the remediation activities at the Pasminco site, including progressive excavation of contaminated soil with subsequent refilling, regrading and surface stabilisation works, and placement of contaminated material in two engineered containment cells on site. The final proposed land uses across the site include passive open space, residential and industrial uses.

Under this approval, the larger cell known as ‘Cell 1’ contains most of the contaminated soil from across this extensive remediation site. The construction of Cell 1 commenced in early 2009. Figure 2 shows the general configuration of this containment cell in an aerial photograph taken in 2012. Cell 1 has an approximate rectangular footprint of 440 metres by 485 metres and covers an area of almost 20 hectares.



Figure 2: Aerial view of the Pasminco site and surrounds, with the containment cell (Cell 1) in the centre

The final surface of Cell 1 will be relatively flat in profile, but graded and self-draining.

Since Cell 1 is a key component of the remediation strategy, its feasibility has been subject to ongoing detailed investigations. Following Project approval, Pasminco has been required to submit detailed design plans for the cell which an EPA accredited Site Auditor and the EPA considered and approved (in 2008).

This approval from the Site Auditor was subject to a condition requiring the EPA's approval for any variations to the cell. In 2010, the EPA approved an extension of the cell footprint by 40m to the west to increase cell volume. This has been reflected in the Environment Protection Licence (EPL) for the site (EPL No. 5042).

The Minister's approval also included a 'Lead Abatement Strategy' (LAS) where residents within identified areas can voluntarily participate by having contaminated soils removed from their private properties and placed into Cell 1 on the Pasminco site. The LAS has commenced and approximately 1223 residents are currently participating in the scheme with varied remediation strategies being undertaken for these properties depending on the level of contamination.

1.3 Pasminco remediation project - modifications

The Department has approved three modifications to the Pasminco Project (MP 06_0184), including:

- MP 06_0184 MOD 1 (approved in June 2010). This approval amended a number of conditions relating to the construction and certification of Cell 1.
- MP 06_0184 MOD 3 (approved in August 2012). This approval amended the drainage and barrier layers within the cap of Cell 1. Additionally, the application altered the gradient slope from 3% to 2% on the top flat area of Cell 1 (known as the top deck) to allow for the development of sporting fields.

An application (MP 06_0184 MOD 2) relating to the approved 'Lead Abatement Strategy 2007' (2007 LAS) was formally withdrawn after significant issues were raised by the Department, EPA and the local community.

A fourth modification application MP 06_0184 MOD 4 (approved in December 2012) is discussed in Section 1.5.

1.4 Incitec remediation works (MP 07_0014)

In 2005, the EPA declared the Incitec site (see Figure 1), a "remediation site" under section 21 of the CLM Act. Remediation of the Incitec site was approved by the Department of Planning (under delegation of the then Minister for Planning) to be undertaken in two stages, in accordance with the following approvals:

- Stage 1 (MP 07_0014) approved in August 2009 by the Director-General, involves the construction and operation of a groundwater treatment system on site to treat and remediate contaminated groundwater hotspots located in the northern section of the site; and
- Stage 2 (MP 08_0221) approved in November 2010 by the then Deputy Director-General involves the decommissioning and demolition of existing buildings and infrastructure on site; the construction of a containment cell and the remediation of contaminated soils across the site, with contaminated material to be contained within the containment cell on site.

Stage 1 has been modified once, in March 2010 (MP 07_0014 MOD 1), to expand the groundwater treatment system. This was intended to address concerns raised by Pasminco that contaminated groundwater from the southern section of the Incitec site was leaching onto the (remediated) Pasminco site. Stage 2 has also been modified, as detailed in Section 1.5 below.

1.5 Consolidated remediation works

On 17 December 2012, the Executive Director approved two concurrent modification applications:

- MP 06_0184 MOD 4 from Minter Ellison Lawyers (Minter Ellison) on behalf of the Pasminco administrators; and
- MP 08_0221 MOD 1 from Incitec Pivot Limited.

These approvals allow the Pasminco administrators to undertake both of the approved remediation activities (across both the Pasminco site and the Incitec sites). Pasminco may now receive

contaminated soil from the Incitec site for emplacement into an expanded and amended containment cell (Cell 1).

As a consequence of the consolidation of the two remediation activities, the Pasminco cell was expanded to accommodate an additional 450,000 m³ of contaminated materials from the Incitec site; bringing the total airspace of Cell 1 to 1,593,100 m³. This also raised the top of the cell by approximately 4m. These modifications to Cell 1 are also detailed in Table 1 (under the heading '2012 approved cell modifications').

The approved Incitec containment cell is therefore no longer required.

2. PROPOSED MODIFICATION

Although the remediation activities are close to completion, recent site surveys of the Pasminco and Incitec sites have identified additional contaminated material requiring containment. As such, Pasminco has submitted a modification application (MP 06_0184 MOD 5) to increase the volume (also referred to as 'airspace') within Cell 1 by 250,000m³ by increasing the containment cell height. This includes contingency airspace of around 110,000 m³.

The additional contaminated material is principally related to the Pasminco site rather than the Incitec site.

An Environmental Assessment (EA) has been prepared to support the modification application. The EA includes a letter from the NSW EPA Accredited Site Auditor for the site, Mr. Graeme Nyland. His letter confirms that the additional contaminated material is primarily from:

- former dams on the site that had been backfilled with contaminated soil; and
- contamination beneath the former Pasminco cadmium plant being substantially deeper than expected.

Mr. Nyland concurs with the Pasminco administrators that the excavation of these areas would significantly increase the amount of soil needing to be placed inside the cell. Table 1 details the key modifications to Cell 1 that are required to accommodate the additional contaminated material.

Table 1: Key modifications to the approved Pasminco containment cell

Cell 1 Component	2007 Approved design	2012 approved cell modifications	2013 Proposed cell modifications
Pasminco cell - airspace	1,143,300 cubic metres (m ³)	1,593,100 m ³	1,900,000 m ³
Pasminco cell footprint	19.4 hectares	No change	No change
Pasminco cell height	34 metres RL	38 metres RL	42.15 metres RL
Pasminco cell surface	Slope 3°	Slope 2°	No change
Pasminco cell batter area	7.5 hectares	11 hectares	12.9 hectares
Pasminco cell platform area	11.9 hectares	8.4 hectares	6.5 hectares

As detailed in Table 1 above, the increase in cell volume would not alter the footprint and the outer area of the containment cell, but the top area (cell platform) would be reduced from around 12 hectares (as approved in 2007) to 6.5 hectares.

The batters (side slopes) on the western side of the cell are benched to reduce the velocity of water flow and therefore erosion. These batters would generally be raised from around 17-23 metres (m) in height to around 27 m. On the eastern side, batters would be raised from around 15-18m to around 22m. Water diversion structures on the platform and batters would be finalised during detailed design.

The cell cap material would be unchanged, that is, capped with geofabric and clay and grassed on the surface and along the battered sides. The existing environmental monitoring (i.e. dust, noise, surface and groundwater) and auditing for the Pasminco remediation would remain applicable.

Pasminco hope to complete remediation activities in 2013 and commence with the cap installment in early 2014.

3. STATUTORY CONTEXT

3.1 Modification under Section 75W

The approved Pasminco project is now considered to be a transitional Part 3A project. In accordance with clause 3 of Schedule 6A of the EP&A Act, section 75W of the Act as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A, continues to apply to transitional Part 3A projects.

Under Section 75W of the EP&A Act, the Minister is obliged to be satisfied that what is proposed is indeed a modification of the original proposal, rather than being a new Project in its own right.

The Department has reviewed the scale and nature of the proposed modification, and is satisfied that it can be characterised as a genuine modification of the original Project as:

- it involves insignificant changes to the approved cell volume and height which would enable the completion of both remediation Projects;
- there are management measures already in place within the Project approval and EPL to ensure compliance with existing remediation goals; and
- the Pasminco Project as modified could be carried out without the need for any additional conditions relating to environmental management.

3.2 Delegated Authority

On 14 September 2011, the Minister delegated his functions to determine section 75W applications to the Director, Industry, Key Sites and Social Projects where:

- the Council has not made an objection,
- there are less than 10 public submissions objecting to the proposal, and
- a political disclosure statement has not been made in relation to the application.

There have been no submissions received from the public on the proposal and Lake Macquarie City Council (Council) has not made an objection to the proposed modification. There has also been no political disclosure statement made for this application or for any previous related applications.

Accordingly, the application is able to be determined by the Director, Industry, Key Sites and Social Projects, under delegation.

4. CONSULTATION AND EXHIBITION

4.1 Consultation

Under section 75W of the EP&A Act, the Department is not required to exhibit the modification application or to undertake consultation. However, at the request of Council, the Department exhibited the Environmental Assessment (EA) for this modification between Friday 8 November 2013 and Friday 22 November 2013.

Copies of the application were made available at:

- the Department's Bridge Street Sydney Information Centre,
- Nature Conservation Council; and
- Council's main office at Speers Point.

During the exhibition period the Department received three submissions from Government agencies, which are summarised below. No public submissions were received.

4.2 Submissions

The **NSW Environment Protection Authority (EPA)** raised no concerns and gave in principal support for the modification, noting that the benefits far outweigh any impacts. The EPA also considered that the EA provided an adequate consideration to the suitability and stability of the enlarged containment cell. No amendments to the Environment Protection Licence (EPL 5042) would be required to facilitate MOD 5, and the EPA recommended that the final detailed design of the cell should be submitted (to the EPA) for approval (in accordance with existing conditions) .

Council did not object to the proposal provided that the capping layer conforms to the approved specification and a Containment Cell Environmental Management Plan is submitted in accordance with existing condition 8.6, 8.7 and 8.8. Council also considers that visually, the amended cell would not be significantly different to the existing cell.

The **Mine Subsidence Board (MSB)** requested detailed plans confirming that the revised containment cell would not be affected by the predicted levels of mine subsidence.

Copies of these submissions can be found in **Appendix B**. The Department has considered the issues in submissions in its assessment of the proposed modification.

4.3 Response to submissions

On 2 December 2013, Minter Ellison provided a response to submissions, see **Appendix B**.

5. ASSESSMENT

During its assessment of the merits of the proposed modification, the Department has reviewed the:

- EA of the original proposal;
- the Department's assessment report and the existing conditions of approval;
- EA of the proposed modification;
- submissions on the proposed modification; and
- relevant policies and guidelines.

The Department has assessed the application on its merits and considers the key issues to be structural stability of the cell, visual impact and mine subsidence.

5.1 Engineering considerations

The proposed increase to the volume of Cell 1 has the potential to increase compression on the cell materials and underlying soil, therefore affecting cell platform settlement. Uneven cell platform settlement could potentially cause ponding or poor drainage on the cell surface, therefore affecting its future use and overall maintenance costs.

The Department notes that the proposed modifications to the cell could also:

- reduce 'slope stability'; and
- increase surface water and groundwater volumes.

The EA included a technical consideration of these issues, (including detailed geotechnical modelling) undertaken by Golder Associates (Golder). The Golder report concluded that:

- cell platform settlement would remain acceptable;
- considering the revised 'loading' conditions, the amended cell design would have acceptable levels of stability;
- surface water management would not be significantly altered and overall run-off volumes on and around the cell would not change; and
- groundwater management would not be impacted by the proposed changes to the cell.

Council did not raise any concerns with the proposed amendments to Cell 1, provided the capping layer conforms to the existing approved specification. The Department notes that the modification does not propose any changes to the approved capping.

The Department notes there is an existing condition (3.2A) that requires the preparation of a Cap Report. This report requires full design details of the engineered features of the cell cap, including surface water management. The Department has recommended that condition 3.2A is modified to include consideration of the changes proposed as part of MOD 5.

The EPA considered that cell stability and settlement had been well assessed in the EA, and in its submission recommend that detailed design for the amended cell should be submitted to the EPA for approval.

In its RTS, Minter Ellison stated that the EA provided adequate detail on the detailed design of the cell, and that no new conditions (requiring detailed design) would be necessary. The Department discussed this further with the EPA who has concurred that the existing project approval already includes conditions that adequately cover detailed design, specifically the cell cap conditions (3.2A and 3.3A) which the EPA and the Site Auditor are required to approve prior to construction of the cell cap.

In addition, on completion of the remediation works, conditions 8.1 to 8.5 require the validation of the remediation works, to certify that works have been constructed in compliance with the approved reports/plans and remediation objectives have been achieved.

The Department is satisfied that the detailed design of the cell has been adequately considered in the EA and there are existing conditions to ensure that the cell would be structurally sound.

5.2 Visual Impact

The proposed amendments to the containment cell volume would result in the containment cell height increasing from RL 38 (as approved in 2012) to RL 42.15 (an additional 4.15 metres). The EA included a visual impact assessment of the proposed changes, including photomontages from various viewpoints towards Cell 1, as available to the public. The Department notes that these viewpoints are from public areas such as roads and ovals.

Figure 3 below is a photo of the site and containment cell taken from a viewpoint at the site entrance on 8 October 2013. Figure 4 is a photomontage of the same view showing the final proposed landform of the cell, with the height raised by 4.15m and grass over the top and sides.



Figure 3: View of Cell 1 from the entry road to the site, at RL 37.15 (photo taken 8 October 2013)



Figure 4: Photomontage of the same view with the cell height increased to RL 42.15

Whilst acknowledging that the increased height proposed to the cell would result in a minor change to the final topography of the site, the EA states that the tapering with battered slopes and landscaping of the cell structure would soften the visual impact of the height of the cell from key vantage points within and external to the site.

In its submission, Council concluded that the '3D' visual assessment demonstrates that the proposal would not significantly increase the visual mass and scale of the existing containment cell from distant views. Closer to the cell, Council considers that proposed height increase would be more visually apparent, however, the submission concludes that visual impact would not be significantly different from the existing cell height.

The Department agrees that due to the nature of the site, and its backdrop against the ridges of Munibung Hill (refer to Figures 2 and 3), the landscaped cell would be integrated well into the surrounding landscape. The modification represents small overall increase in height from 38 to 42.15m. No conditions of approval in relation to this issue are considered necessary.

5.3 Mine Subsidence

As the Pasminco site is on land within a proclaimed mine subsidence district, the Department invited the MSB to make a submission on the modification.

In its submission, the MSB 'approved' the proposed changes to Cell 1, but stipulated that copies of the final design drawings for Cell 1, certified by a qualified structural engineer, should be submitted to the MSB. The certification is required to confirm that the changes to the cell would not be affected by the following mine subsidence parameters:

- maximum vertical subsidence of 200mm; and
- maximum tilt of 2mm/m; and
- maximum ground strains of $\pm 2\text{mm/m}$.

In addition, the MSB requested further certification (by a structural engineer) on completion of works, that Cell 1 had been constructed in compliance with the plans approved by the MSB.

The Department notes there is already an existing condition in place requiring Pasminco to submit detailed plans of Cell 1 to the MSB (condition 3.4A), demonstrating that local mine subsidence would not affect the cell.

The Department has recommended a minor amendment to this condition to ensure that the changes proposed under this modification (MOD 5) are also considered. The Department is satisfied that this amended condition ensures that the MSB's requirements are met.

6. CONCLUSION

The Department has assessed the merits of the proposal in accordance with the requirements of the EP&A Act.

This assessment has found that:

- the changes to the approved volume and height of Cell 1 would enable the Project to be completed, therefore removing exposed contaminated material;
- the modifications would avoid any requirement to place the additional contaminated soil into a second cell with appropriate environmental safeguards in place (therefore saving the Proponent time and money);
- the amendments to Cell 1 would have a minimal visual impact from viewpoints within and outside of the remediation site; and
- there are existing environmental management plans in place to effectively manage the modified containment cell.

The Department considers that the proposal should be approved subject to some minor amendments to the existing conditions. Minter Ellison has reviewed and accepted the modified conditions of approval on behalf of Pasminco.

7. RECOMMENDATION

It is RECOMMENDED that, as delegate for the Minister, the Director, Industry Key Sites and Social Projects:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approve** the application subject to conditions; and
- **sign** the attached notice of modification (**Appendix C**).

Prepared by Kerry Hamann
(02) 9228 6516

 18/12/13.
Chris Ritchie
Manager – Industry Projects

 19/12/13
Daniel Keary
Director
Industry, Key Sites and Social Projects