Preservation Needs Assessment

Coal Mining and Power Collection

Lake Macquarie City Library

May 2009

International Conservation Services
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Chatswood NSW 2067
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1 Executive Summary

The Lake Macquarie City Library (the Library) Coalmining and Power Collection reflects the development of coalmining and power generation within the Hunter Region of New South Wales. It is estimated to contain between 7,000-8,000 items, and was donated to the Library by Coal and Allied Industries in 2000.

As part of its continued commitment to ensuring the long term conservation and care of its collection, the Museum commissioned a Preservation Needs Assessment in 2009. This Assessment was undertaken by International Conservation Services (ICS) in May 2009. As part of the Assessment process, ICS reviewed the status of the collection by examining its nature, the material types within it, and the techniques used to store and display the collection. Additionally, ICS examined the overall condition of the items and the surrounding environment.

At the time of writing, the Library had recently relocated the collection to an alternate storage facility (Newcastle University)\(^1\). It should be noted that the observations and majority of the recommendations in this report are related to the current Library site only, and may not be applicable to any new storage sites.

This Preservation Needs Assessment provides an overview of the current state of the Library’s Coalmining and Power Collection, its management and its care. The three main recommendations arising from the Assessment are:

- **Re-house** the collection in appropriate plan cabinets and storage materials
- **Treat** mould affected and degrading collection items
- **Digitise** the collection

2 Key recommendations

The following prioritised recommendations have been developed in response to the Preservation Needs Survey undertaken in May 2009. They have been divided into:

- **Short term** recommendations, that is, within the next **12 months**
- **Medium term** recommendations, that is, within the next **3 years**; and
- **Long term** recommendations, that is within the next **5 years**.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Section in document</th>
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<tbody>
<tr>
<td><strong>#</strong></td>
<td><strong>Short term – within 12 months</strong></td>
</tr>
<tr>
<td>1</td>
<td>Clean the collection to remove dust, dirt and insect debris</td>
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\(^1\) Discussion with Information Services Librarian, 21\(^{st}\) May 2009
3 Policies

At present, the Library does not have any management policies associated with the collection.

A Significance Assessment of the collection was undertaken in June 2008.

4 Collection

4.1 Description

The Coal Mining and Power Collection contains approximately 7,000-8,000 documents relating to electricity generation and coal mining in and around the Hunter Region. The Collection is comprised of two sub-collections, the Coal Mining Collection, which comprises approximately 4/5 of the total collection, and the Power Collection, which comprises approximately 1/5 of the total collection.

It is primarily a paper-based collection, and includes:

- Plans
- Documents
- Linen coated paper items
- Blueprints
- Plastic coated paper items
- Tracing paper items
- Polyester transparencies

The items range in size from large A0 plans to A4 and foolscap size documents.

The Coal Mining Collection encompasses maps, plans and charts acquired from Coal and Allied Industries in 2000. Items in this collection date from the 1930s to the 1980s, and relate primarily to collieries owned by Coal and Allied Industries. It contains plans and diagrams from over fifty Hunter Valley collieries, exploring aspects such as methods of mining, the geology and geography of the area, coal preparation and haulage, site rehabilitation, mine safety and coal analysis.

The Power Collection was also acquired from Coal and Allied Industries in 2000, and is primarily related to power generation within the Lake Macquarie region. It contains a complete set of construction plans for Wangi Power Station, which are of particular significance, as they appear to be the only complete set of construction plans for the Wangi Power Station still in existence. In addition, the Power Collection contains documents from the Department of Railways and the Electricity Commission.

### 4.2 Condition

Overall, the collection was found to be in fair condition. Evidence of significant amounts of dirt, dust, insect frass and insect carcases was found amongst the collection (Image 1). Additionally, live cockroaches have been reported in the space, although this was not observed during the site visit. This is not good practice for collection care, and it is recommended that the collection be regularly inspected for dirt and debris, and preventive measures taken to ensure the ingress of dirt, dust and insects is kept to a minimum. See section 6 Environment and section 7 Storage for further discussion on this issue.

A number of items appear to have sustained insect damage, most likely from silverfish and cockroaches.

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2 Lake Macquarie City Library Coal Mining and Power Collection Assessment of Significance, Hunter History Consultants Pty Ltd, 2008
Image 1: Insect carcases, dust and dirt on collection items, and items displaying signs of insect damage

It is recommended that regular pest inspections be undertaken within the space, and that pest eradication measures, such as insect traps, be placed within the space.

Corrosion spots were identified on a number of collection items (Image 2), likely due to contact with the corroding metal plan cabinets. In addition, metal fastenings are corroding, causing damage to some collection items (Image 3). This is does not reflect good care, and it is recommended that the collection be re-housed in new plan cabinets and storage materials, and that all metal fastenings be removed from collection items. This will aid in reducing future damage to items.

Image 2: Corrosion spots on collection items
Several works were found to have foxing staining. This usually takes the form of small brown spots, although in some cases the foxing was bleaching the paper of colour, resulting in white spots (Image 4).

The collection is also affected by mould. Several items were observed to have active mould growth on the surface which, left untreated, can quickly spread and spread throughout the collection (Image 5). Untreated mould growth will digest the paper substrate, weakening the material and causing loss to the item. It will also cause permanent staining to the paper surface. It is recommended that all mould affected items be isolated from the collection to avoid the spread of mould spores and cleaned before being returned to the collection.
One set of plastic transparencies is also badly degrading (Image 6). Without further testing, it is not certain whether this deterioration is a chemical degradation reaction in the plastic itself or advanced mould deterioration. These items are producing a strong odour and should be isolated from the rest of the collection to avoid contamination of other collection material. It is recommended that these items undergo conservation and stabilisation treatment before they are returned to the collection store.

Image 5: Active mould growth
Some collection items have had their accession numbers either written or stamped directly onto them. It is unclear whether these numbers relate to a previous numbering system or the current collection management system. The cabinets have masking tape labels on the front of the drawers, however, these numbers do not appear to match with the records in the drawers. The collection does not appear to have a discernable or consistent cataloguing system which can make location tracking of items difficult, and may also mean that theft or item loss goes unnoticed. It is recommended that the collection be catalogued into an electronic database, and numbered in a consistent manner. The collection should also be labelled at the same time, using appropriate conservation techniques.

4.3 Handling

Staff have not had any formal training in how to appropriately handle the collection, and are thus unsure of the correct techniques. At present, it is unknown if the collection has sustained damage due to incorrect handling techniques. Staff should undergo training to learn appropriate handling, storage and cleaning techniques (see section 11 Training Needs).
4.4 Access

On occasion, the Library receives requests from the public to view or access the collection, however this does not occur with any regularity. Staff access to the collection is also quite low, with staff currently accessing the collection only sporadically throughout the year, or when the collection is moved.

At present, the collection exists only in hard copy form. It is recommended that the Library undertake a program of collection digitisation, for two main reasons:

- Many of the collection items are beginning to deteriorate. Continued and/or frequent handling may exacerbate item deterioration.
- Digitising the collection will enable wider and more frequent access, and will allow a larger audience to view/utilise the collection, particularly if the Library chooses to place the collection on-line, via an on-line collection management database.

In the first instance, the Library should seek to digitise the key items of significance within the collection (as identified in the Significance Assessment), and, when time and funding permits, continue to the digitisation process until all items have been digitised.

Recommendations:

1. Clean the collection to remove dust, dirt and insect debris
2. Isolate mould-affected or other badly degraded material from the rest of the collection.
3. Treat degrading transparencies
4. Remove metal fastenings from collection items
5. Digitise the collection
6. Catalogue, number and label the collection
7. Undertake regular pest inspections of the collection storage space

5 Buildings

At the time of the Assessment, the collection was housed in a single brick building with corrugated roof, previously known as the Morisset Baby Health Centre (Image 7). This building is attached to the Lake Macquarie City Library. Prior to the collection being housed in this structure, it was housed in a shipping container on the Yambo Street side of the Baby Health Centre building.
The internal temperature appeared stable. The space is fitted with fluorescent tube lighting, which is kept off when the building is not in use. The interior of the building is somewhat dilapidated, with peeling paint on the ceiling (Image 8) and part of the linoleum flooring missing. An air conditioning unit was present in the space, however it is unclear if it is still in working order or if it is still used. The building has a history of leaks, with water stains present on several internal walls. This is not acceptable in a collection store, as the internal environment can be adversely affected by water ingress, and can lead to mould growth as well as unstable environmental conditions.
It is recommended that the collection be re-housed in an environment that is more stable and less prone to water ingress. See also section 7 Storage.

Recommendations:

8. Relocate the collection to a more appropriate storage space.

6 Environment

6.1 Light

As discussed earlier, the collection is housed in a single building with fluorescent lighting. The lights are kept off when the building is not in use. In addition, there are a number of windows which let in a considerable amount of natural light. Most windows have been fitted with either metal venetian blinds or fake lace curtains. All blinds are left open, with the exception of the window behind the entrance hall cabinets.

Although light damage is cumulative and cannot be reversed, the collection does not appear to have sustained damage as a result of being housed in an environment with considerable levels of natural light. This is most likely due to the fact that the collection is contained within the plan cabinets (see also section 7 Storage).

It is recommended that the collection be kept out of direct light, and exposure to light kept to a minimum.

6.2 Pollutants

As discussed in section 4.2, the area in which the collection is housed is prone to pest infestations, despite pest reduction measures, that is, spraying the area for insects. The
primary material type of this collection, paper, is particularly prone to insect damage, and should thus be kept in a pest-free environment, as recommended in section 4.2.

Dust, dirt and debris was also observed to be prevalent in the storage area. These conditions are not recommended for collection storage, as, in addition to potentially causing damage to the collection, excess dirt and dust can encourage insect activity. As recommended in section 4.2, the space should be regularly inspected for pests, and dust, dirt and debris kept to a minimum.

6.3 Environment

The environment appeared to be stable, although relative humidity (RH) and temperature readings were not available at the time of writing. Given the building materials, it would be expected that the building envelope would provide some insulation from the extremes of summer and winter temperatures and a moderating effect on environmental fluctuations. Ideally, the environment in which paper items should be stored should be one with low light, minimal dust/pollutants and stable RH and temperature levels. The generally accepted levels for RH and temperature, for storage of paper items are:

- 50% ± 5% RH
- 22°C ± 5°C

Minimal fluctuations (approximately 10% per day) are acceptable, however, daily fluctuations of more than 20% place dangerous stresses on collection material and in particular, paper-based items. It is recommended that stable environmental conditions are maintained, in order to ensure the longevity of the collection. It is also recommended that the Library purchase a datalogger, in order to monitor the environmental conditions in which the collection is stored.

Recommendations:

9. Ensure light exposure is kept to a minimum
10. Maintain stable environmental conditions
11. Purchase a datalogger and monitor environmental conditions

7 Storage

At the time of inspection the collection was housed in 11 plan cabinets (Image 9). These metal plan cabinets were stacked in blocks of three, with the exception of the two larger cabinets near the entrance, which were a stack of two. None of the plan cabinets have legs, and are stacked directly on the floor. This is not recommended practice, as it does not permit airflow under the cabinets. In addition, water leaks could potentially flow underneath the cabinets and cause further corrosion or mould growth, which cannot be treated. Furthermore, this provides a sheltered area for pests, and may encourage insect activity and result in damage to the collection.
Image 9: Plan cabinets used to store the collection

All plan cabinets are corroding extensively, particularly on the exterior surfaces (Image 10). For the most part there was no corrosion on the inside of the drawers, although some of the protector flaps, which are in contact with the collection, were corroding. The current state of the plan cabinets is unacceptable for the storage of this, or any, collection. It is recommended that the cabinets be replaced.
Image 10: Corroding plan cabinets

The collection items are haphazardly stacked in piles in the plan drawers. There does not appear to be any order to the items. Some of the lower items have edges folded over which are being crushed by the items on top. Similarly, corners have been pushed in to make the documents fit in the drawers, which is causing crush damage to collection items (Image 11). This is an inappropriate manner of storage, and it is recommended that the collection be re-housed using appropriate archival storage materials, such as Mylar sleeves or interleaving with acid-free tissue or blotter for larger items.
In addition, it was noted that some items are stored in plastic folders and sleeves did not appear to be of archival quality. While providing protection from dust and other pollutants, it is likely that these sleeves and folders will degrade faster than the collection material and may, as a result, cause damage to the paper.

In many cases, different material types have been housed together. This is not recommended practice, as different material types degrade at different rates, for example paper documents will degrade at a different rate to plastic transparencies. The degradation of one material type may affect other items in the same drawer, and cause irreversible damage. It is therefore recommended that the collection be separated into material types, and stored in separate drawers.

Recommendations:

12. Purchase new plan cabinets  
13. Re-house collection according to material type, in appropriate housing materials

8 Display/Exhibitions

The collection is currently in permanent storage, and there are currently no plans for display.
9 Housekeeping

Presently, there is no housekeeping schedule for the Baby Health Centre building. On occasion, Library staff come in to clean the premises themselves. In order to promote the longevity of the collection, it is recommended that a housekeeping regime be developed for the storage space. This will aid in ensuring that dust and insect ingress is kept minimal, and will also allow leaks and other potentially harmful events to be discovered quickly. This will, in turn, aid in reducing damage to the collection, should such an event occur.

Recommendations:

14. Develop a cleaning schedule for the collection store

10 Disaster preparedness

There is no Disaster Preparedness Plan associated with the collection. It is recommended that the Library commission a qualified consultant to guide the process of developing a Disaster Plan. Its principles should be implemented so that all staff understand how to protect the collection in the event of a disaster. As part of the process of writing a plan, a risk assessment should be undertaken, and a list of emergency contacts be formulated, and importantly, staff trained in response and salvage procedures.

Recommendations:

15. Commission a qualified consultant to develop a Disaster Preparedness Plan

11 Training needs

Library staff have not undergone training in appropriate handling, storage and/or cleaning techniques for the collection. It is recommended that the Library engage a qualified consultant to conduct a training workshop for staff who regularly interact with the collection. This workshop should cover correct handling techniques, appropriate storage and basic cleaning methods for the collection.

16. Commission a qualified consultant to undertake a training workshop for Library staff
## Prioritised recommendations

<table>
<thead>
<tr>
<th>#</th>
<th>Short term – within 12 months</th>
<th>Priority</th>
<th>Resources</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Clean</strong> the collection to remove dust, dirt and insect debris</td>
<td>1</td>
<td>Personnel to undertake cleaning using appropriate techniques</td>
<td>Approx $2,500/cabinet (incl GST)</td>
</tr>
</tbody>
</table>
| 2  | **Isolate** mould-affected or other badly degraded material from the rest of the collection. | 1        | Space to isolate mouldy items  
Personnel to undertake cleaning using appropriate techniques | |
| 3  | **Treat** degrading transparencies | 1        | Funds to commission conservator to treat items | Approx $825 (incl GST) |
| 7  | **Undertake** regular pest inspections of the collection storage space | 1        | Personnel to coordinate regular pest inspections | |
| 12 | **Purchase** new plan cabinets | 1        | Funds to purchase new cabinet  
Personnel to re-house collection | Approx $2,300 (incl GST) |
| 13 | **Re-house** collection according to material type, in appropriate housing materials | 1        | Funds to purchase appropriate storage materials  
Personnel to re-house the collection | Approx $3,000 (incl GST) |
<p>| 14 | <strong>Develop</strong> a cleaning schedule for the collection store | 2        | Personnel to develop and undertake cleaning regime | |
| 16 | <strong>Commission</strong> a qualified consultant to undertake a training workshop for Library staff | 2        | Fund to commission consultant to training workshop | |
| 9  | <strong>Ensure</strong> light exposure is kept to a minimum | 3        | Personnel to ensure light exposure is kept to a minimum | |
| 10 | <strong>Maintain</strong> stable environmental conditions | 3        | Personnel to ensure light environment is kept stable | |
| 11 | <strong>Purchase</strong> a datalogger and monitor environmental conditions | 3        | Funds to purchase a datalogger | |</p>
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<tbody>
<tr>
<td>4</td>
<td><strong>Remove</strong> metal fastenings from collection items</td>
<td>1</td>
<td>Personnel to remove metal fastenings from collection items</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><strong>Relocate</strong> the collection to a more appropriate storage space</td>
<td>1</td>
<td>Personnel to relocate collection</td>
<td></td>
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<tr>
<td>15</td>
<td><strong>Commission</strong> a qualified consultant to develop a Disaster Preparedness Plan</td>
<td>2</td>
<td>Funds to commission consultant</td>
<td>Approx. $6,600 (incl GST)</td>
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<td>5</td>
<td><strong>Digitise</strong> the collection</td>
<td>3</td>
<td>Funds to digitise the collection</td>
<td>Approx $15,000 (incl GST)</td>
</tr>
<tr>
<td>6</td>
<td><strong>Catalogue</strong>, number and label the collection</td>
<td>3</td>
<td>Personnel to undertake cataloguing</td>
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### 13 Authorship

This Preservation Needs Assessment was produced by International Conservation Services. The site assessment was undertaken by Felicity Turner, Paper Conservator (B Lib Stud Hons; MA(CMC)). The report was written by Erin Watson (BSc/BA), Collections Manager, and Felicity Turner. It was reviewed by Julian Bickersteth, Managing Director.