



HAMMERHEAD CRANE DECONSTRUCTION AT GARDEN ISLAND

Hazardous Paint Management Plan

Prepared by
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for
Brookfield Johnson Controls

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1 PURPOSE

The purpose of this Hazardous Paint (Lead) Manager Plan (HPMP) is to provide a structured and integrated approach for the management of the lead and zinc chromate containing paint on the Hammerhead Crane structure.

This Hazardous Paint Management Plan (HPMP) outlines the method by which Liberty Industrial shall manage the key aspects of lead and zinc chromate paint for the project to ensure that:

- There will be no pollution of the environment;
- The public, naval personnel and other dockyard personnel are not placed at risk of exposure to lead and chromates, and;
- The deconstruction workers involved are not occupationally exposed to lead and chromates.

2 SCOPE

This HPMP shall apply to all Liberty Industrial workers, and to any sub-contractor (s) that are approved to undertake or perform work on Liberty Industrial projects.

This HPMP has been developed using the CTI Consultants Pty Ltd “Hazardous Paint Management Plan For The Proposed Deconstruction Of The Hammerhead Crane at Garden Island” document dated May 15th, 2013 and the following standards and codes of practice:

- AS/NZS ISO 9001:1994: Quality systems - Model for quality assurance in production, installation and servicing;
- AS/NZS 4581 - 1999: Management System Integration – Guidance to Business, Government and Community Organisations;
- AS/NZS 4804 - 2001: Occupational Health and Safety Management Systems - General guidelines on principles, systems and supporting techniques;
- Work Health and Safety Act 2011 (NSW);
- Work Health and Safety Regulation 2011 (NSW);
- Deconstruction Work Code of Practice;
- How to Safely Remove Asbestos 2011;
- AS/NZ 2601- 2001 Deconstruction of Structures;
- AS 4361.1-1995: Guide to lead paint management - Industrial applications;
- AS 4361.2-1998 : Guide to lead paint management - Residential commercial buildings;
- AS/NZS 1716: 2012 Respiratory protective devices;
- AS 1319-1994: Safety signs for the occupational environment;

3 OBJECTIVES AND POLICIES

This Hazardous Paint Management Plan provides safe work practice for tasks involving lead-containing material.

4 PERSONNEL ROLES, RESPONSIBILITIES

4.1 RESPONSIBILITIES

At various levels with the organization, certain positions hold important responsibilities for general environmental activities.

Project Director	-	Establish overall direction;
Project Manager	-	Total management of all operations, workers and subcontractors;
	-	Ensure compliance with all requirements outlined in the HPMP;
	-	Liaison with the client in relation to lead paint matters;
	-	Ensuring that all protection equipment is provided and maintained concerning the undertaking's;
	-	Review reports and inspections and initiate corrective actions;
Safety Advisor	-	Conduct baseline environmental investigations;
	-	Review the Hazardous Paint Management Plan (HPMP);
	-	Provide on-site advice in relation to the management of health and environmental issues;
	-	Conduct incident investigations;
	-	Prepare monitoring report;
All Workers	-	Conform to the hazardous paint management system;

All workers on the project have a responsibility for ensuring the health of workers and the environment isn't compromised, and to manage and report any health and environmental issues.

Ref: LI-FRM-031 Incident Report

5 RISK ASSESSMENT (SIMPLIFIED) & EXPOSURE ASSESSMENT

5.1 RISK FACTORS

5.1.1 Public

Current occupied residences:

- Senior RAN personnel on the base;
- Finger Wharf (Wharf 10);
- Wylde Street, Potts Point south of base;

Pursuant to AS 4361.1, the overall project Public Risk Factor is “High”.

5.1.2 Adjacent Workers

The closest adjacent workers will be those in adjacent buildings, or RAN personnel and others on ships moored along the wharf.

Under the circumstances, AS 4361.1 assigns a “Low” risk factor to adjacent workers.

5.1.3 Environment

Any project in close proximity to a waterway is assigned a “High” environmental risk factor under AS 4361.1.

5.1.4 Sensitive Receptors

There are no specific sensitive receptors in the immediate vicinity of the crane not already considered in the above.

5.2 EMISSION CONTROL LEVEL

Considering the above risk factors, pursuant to AS 4361.1, the Emission Control Level for this project “A”.

6 WORK PROCEDURES FOR DECONSTRUCTION

Prior to undertaking deconstruction work in a particular area, the following will be implemented (*Note: No pre-cleaning or removal of flaky paint will take place – flaky paint areas to be sprayed with PVA only*):

6.1 STABILISATION OF PAINT WITH PVA

All flaky paint on the structure shall be stabilised in-situ by the spray application of an approved high build flexible water-borne PVA or acrylic paint to a dry film thickness of not less than 200µm. (*Note: Approval for the encapsulating paint shall be sought from the principal hazardous substances consultant*).

Application shall be by airless spray to minimise disturbing the existing paint, with no surface preparation to be undertaken as this will disturb the existing paint.

6.2 REMOVE PAINT FROM OXY CUTTING ZONES

Where steel members are to be oxy-cut, a 100mm wide strip of paint about the cut line (i.e. 100mm wide strip either side of the cut line) shall be completely removed using a chemical paint stripper and scraper or vacuum-shrouded Rotapeen and Blast 'n' Vac.

The removed waste shall be progressively placed into plastic bags and placed in the designated lead contaminated waste bin.

6.3 DEBRIS RELEASED BY DECONSTRUCTION

During oxy-cutting of steel, paint on inner or obscured surfaces may become charred and release flakes or fumes.

A vacuum hose shall be used to extract any fumes or flakes released during the process.

After cutting of steel, previously obscured surfaces shall be examined for loose paint or debris, and if found are collected and plastic bagged and placed in the designated lead contaminated waste bin.

6.4 HANDLING OF REMOVED SECTIONS

6.4.1 *Sections to be transported by barge*

Sections to be transported by barge (predominately the salvage items) are separated from the main structure and craned directly onto the barge, with a HEPA Vacuum available to clean-up any minor debris as required.

6.4.2 *Sections to be transported by Semi Tipper*

Sections to be transported by semi tipper are craned into the designated materials processing area where they are downsized using a combination of 33t excavator and shear attachment (cold cutting) and oxy cutting by hand.

The processed material is progressively loaded into a semi-tipper trailer parked in the materials processing area and the trailer covered with a tarpaulin when not being loaded.

When full, the trailer is transported offsite to the designated scrap recycling facility.

6.5 HIGH WIND LIMITATION

Work will be stopped if wind conditions worsen to the point where the work becomes unsafe or such that debris cannot effectively be contained or captured.

6.6 STORMWATER MANAGEMENT

All stormwater drains and service trenches shall be protected with geo-fabric during the work to prevent discharge of contamination to the harbour.

Back-charging of stormwater at times of heavy rain is to be adequately managed.

6.7 DUST- FREE METHODS

No hazardous dust is to be created or emitted to the environment from the deconstruction work. All procedures and techniques used in the preparation and deconstruction work shall be dust-free, or shall employ point-of-source ventilation (vacuum shrouding).

7 WORKER SAFETY

The following additional controls shall be implemented to ensure safety of the workers.

7.1 LEAD AWARENESS

All workers will be made aware of the presence of lead chromate paint through the site specific induction which will include the following:

- Health effects of exposure to lead and chromate
- Safe working methods
- Personal hygiene
- Environmental concerns

7.2 RESTRICTED AREA (PROTECTION AGAINST LEAD AND CHROMATE EXPOSURE)

The deconstruction work site will be a restricted area, secured by perimeter fencing, to prevent unauthorised entry.

The perimeter fencing shall be sign posted with “Warning, Lead Work Area” signs in addition to “deconstruction works in progress” signs.

A decontamination area will be established adjacent the site amenities with screening and impermeable ground sheeting.

7.3 SMOKING, FOOD AND DRINK

No food, drink or tobacco products are to be brought into the restricted area, and no smoking is allowed within the work area.

All workers are to follow the procedure in Section 7.5 below on leaving the designated work area.

7.4 PERSONAL PROTECTIVE EQUIPMENT

All workers shall wear the following minimum PPE:

- Disposal overalls
- Disposable P2 masks
- Gloves

Where oxy-cutting is undertaken, a half-face respirator fitted with a P2 dust cartridge shall be worn.

7.5 SITE HYGIENE

During breaks, all workers are to decontaminate in the designated decontamination area adjacent the site amenities using the following procedure:

- Masks removed and placed in a plastic bag for disposal
- Gloves removed and placed in a designated area for re-use
- Face and hands are to be cleaned using wet wipes
- Overalls are removed and placed in a plastic bag for disposal
- Dress themselves

7.6 PREVENTION OF TAKE- HOME DUST

All personnel are to follow the procedure in section 7.5 above for decontamination prior to leaving the site.

7.7 MEDICAL MONITORING

Blood lead levels are currently the best indicators of worker lead exposure.

Therefore, all workers shall participate in a medical surveillance program which involves blood lead monitoring pursuant to the NSW Work Health and Safety Regulation 2011- Part 7.2.

- Baseline blood lead and zinc protoporphyrin ZPP levels will be determined for those workers undertaking lead contact tasks.;
- Workers exposed to lead exceeding 30 g/m³ for an 8-hr TWA for more than 30 days in 12 consecutive months will be monitored for blood lead and ZPP levels every two months for the first six months and every six months thereafter;
- Should blood lead levels at or exceed 50 g/dl, the worker will be removed from lead exposure, and blood test will be repeated every 2 months until 2 consecutive blood samples indicate blood lead levels to be below 40g/dl;
- Workers blood lead and ZPP analysis results will be maintained in their personnel file pursuant to WHSR 418 Health monitoring records;
- The medical record will be retained for at least 30 years;

- The person must ensure that the health monitoring report and results of a worker are not disclosed to another person without the worker's written consent;

8 WASTE MANAGEMENT

8.1 WASTE COLLECTION

Waste generated by the undertaking shall be regularly collected and the cleanup of areas shall be done using a HEPA vacuum system.

As a minimum all catch sheets on the ground or at height shall be cleaned twice per day and more often if the weather deteriorates.

On completion of daily work activities all areas are to be cleaned up and under no account shall significant amount of waste be left overnight.

8.2 WASTE HANDLING

All contaminated waste generated during the deconstruction works shall be contained in plastic (bags or sheets), and placed in the designated contaminated waste bin for transport and disposal at a licensed disposal facility, with a daily contaminated waste collection implemented.

The designated contaminated waste bin shall be covered and secured.

Generated waste records shall be maintained and recorded on the prescribed form and in the prescribed manner.

No liquid waste is envisaged to be generated from site hygiene facilities as wet wipes shall be used for personal decontamination, however, in the event that liquid waste is produced, the waste shall be filtered and collected in portable tanks which are to be clearly labeled and will be disposed of by a licensed waste water carrier.

8.3 STORAGE OFF-SITE

All workers involved in the collection, handling and storage of waste shall be trained in the correct procedure for handling and waste disposal.

The daily inspection for waste disposal shall be conducted to ensure that all work areas are kept free and safe from residual waste.

Generated waste shall be removed from site each day and transported to a safe and secure site until a sufficient amount for transportation can take place to the correct waste facility.

8.4 SAMPLING AND ANALYSIS

Samples of the waste should be collected for analysis of the total lead and chromium² concentration and toxicity characteristic leaching procedure (TCLP) testing for lead and chromium.

The tests should be done at a NATA accredited laboratory. Using the correct forms for chain of custody and the forms shall accompany each and every sample.

The forms shall be returned to Liberty Industrial along with the written report.

All forms shall be kept on site till completion of project.

8.5 CLASSIFICATION OF WASTE.

Waste classification Guidelines- Part1 Classifying Waste (Issued December 2009) shall be used to classify all NON-Liquid waste.

Further Classification may be required for general waste to determine if the waste is putrescible or not

See table below for classification of solid waste contaminated with lead or chromium (VI).

Classification of waste	Waste Containing Lead	Waste containing Chromium (VI)
General Solids Waste	$\leq 1,500\text{mg/kg}$ of lead AND $\leq 5\text{mg/L}$ TCPL Lead	$\leq 1,900\text{mg/kg}$ of chromium (VI) AND $\leq 5\text{mg/L}$ TCPL Chromium (VI)
Restricted solid waste	$\leq 6,000\text{mg/kg}$ total lead AND $\leq 20\text{mg/L}$ TCPL lead	$\leq 7,600\text{mg/kg}$ total chromium (VI) AND $\leq 20\text{mg/L}$ TCLP chromium (VI)
Hazardous Waste	$\geq 6,00\text{mg/kg}$ total lead AND $\geq 20\text{mg/L}$ TCLP	$\geq 7,600\text{mg/kg}$ total chromium (VI) OR $\geq 20\text{mg?L}$ TCLP chromium (VI)

8.6 WASTE DISPOSAL

All wastes generated by the work shall be disposed of in accordance with the all relevant environmental protection regulations.

When the wastes have been assessed, an appropriate disposal strategy shall be formulated and the waste shall be transported and disposed of in accordance with this strategy.

For paint waste contaminated with lead and chromates, recycling through Australian Refined Alloys may be possible.

In the event liquid waste is produced, the waste disposal shall be carried out by a licensed waste-water transporter who shall be alerted to the possibility of the waste water containing lead and chromates.

All hazardous waste requires tracking, and shall be transported by a licensed hazardous transport company.

A waste management register shall be maintained for the project to record the reuse, recycling, stockpiling or disposal of all waste sent off-site, including test results, quantities and ultimate method of disposal or treatment.

8.7 RECYCLING OF STEEL

Other than the salvage items, all metal will be sent offsite for recycling.

The recycling facility shall be notified of the presence of lead and chromate paint on the metal.

8.8 SALVAGE ITEMS

The heritage items identified to be salvaged are removed as whole units in accordance with the engineered deconstruction sequence.

As these items are removed, they are loaded onto to a barge in the water adjacent, and transported along the water to the unloading area of the storage yard in Camellia, NSW where they are unloaded using mobile cranes.

A temporary enclosure is constructed around the heritage items and each item sandblasted to remove any lead chromate paint.

The following procedure will then followed to restore the item:

- All prepared surfaces are primed or sealed using a low viscosity solvent-free epoxy sealer applied at a nominal dry film thickness of 40-50 µm
- Primed surfaces are then coated with an approved two-pack surface tolerant epoxy barrier coat which meets requirements of AS/NZS 3750.1 in one or more coats at a spreading rate corresponding to a nominal average DFT of at least 125 µm
- Primed and sealed surfaces are then coated with an approved two-pack surface tolerant aluminium pigmented epoxy barrier coat which meets the requirements of AS/NZS 3750.1 in one or more coats at a spreading rate corresponding to a nominal average DFT of at least 125 µm

9 ENVIRONMENTAL MONITORING

9.1 GROUND SURVEYS

Prior to deconstruction works, soil and surface dust sampling shall be carried out in the surrounding areas using the relevant provisions contained within AS 4361.1 Appendix G and in AS 4361.2 Appendix C.

The survey shall include 4 soil samples and a minimum of 10 surface dust samples, with the exact sampling locations recorded by a suitably qualified hygienist at the time of the survey.

The lead and chromate analysis shall be carried out at a NATA-accredited laboratory.

Additional surveys (using the same locations) shall be undertaken at the following times:

- Three (3) months from commencement;

- Six (6) monthly intervals thereafter if the results after 3 months indicate that emissions are being controlled (more frequently if indicated by adverse results);
- If otherwise indicated by complaint or mishap;
- On completion of the deconstruction works;

All subsequent surveys should involve sampling at the same locations as in the background survey, using the photographs to identify the exact sampling locations.

In addition, a visual inspection of the site and surrounding areas should be carried out, and additional samples taken using judgemental sampling wherever there are signs of possible contamination.

In the event that soil quality or if surrounding surfaces show dust contamination, the affected area will be remediated.

9.2 WATER SAMPLING

During the deconstruction water sampling will be undertaken adjacent to the crane pursuant to AS 4361.1 Appendix H and analysed for lead and chromium.

In addition water sampling will be undertaken every three (3) months and on completion of the works, or when mishaps or spillage occurs.

In the event that water quality has been affected the EPA will be advised to determine the appropriate course of action to be taken.

9.3 AMBIENT AIR MONITORING

9.3.1 Visible Emissions

Monitoring of visible emissions for all aspects of the works pursuant to AS 4361.1 Section F of the standard will be undertaken.

Visible emissions will not exceed level 1 emission classification for and one day.

9.3.2 Total Suspended Monitoring

Ambient air quality monitoring will be carried for Total Suspended Particulates (TSP) using high volume air sampler pursuant to AS 4361.1.

TSP will be undertaken at all times that lead is being disturbed.

Background monitoring shall be carried out for days prior to commencement of lead work.

Two high volume air samplers shall to be used, to be placed at ground level in the vicinity of the crane.

One high volume air sampler shall be placed at the northern end of the exclusion zone and one at the southern end.

The TSP-dust moving average shall not exceed $90 \mu\text{g}/\text{m}^3$, or $45 \mu\text{g}/\text{m}^3$ above the average background TSP dust, whichever is the greater. In the event of this criteria is exceeded, work is to cease and a review of the work practices undertaken.

The TSP-lead and TSP-chromium moving average shall not exceed $0.5 \mu\text{g}/\text{m}^3$, or $0.25 \mu\text{g}/\text{m}^3$ above the average background levels, whichever is the greater. In the event of this criteria is exceeded, work is to cease and a review of the work practices undertaken.

During the Works, the recorded TSP lead or TSP-chromium level on any one high volume air sampler on any one single day shall not exceed $1.0 \mu\text{g}/\text{m}^3$ and the recorded TSP-dust level shall not exceed $180 \mu\text{g}/\text{m}^3$. In the event that this criteria is exceeded, work is to cease and a review of the work practices undertaken.