



Wallerawang Power Station Project Demolition

Contaminated Land Management Plan

Prepared by
Liberty Industrial Pty Ltd
For



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PREPARED: John Stevanoni Date: 07 - 04 - 2021
Principal Environmental Engineer

ACCEPTED: Alwin De Leon Date: 07 - 04 - 2021
Project Manager

Specialist Deconstruction Services

- Industrial demolition contractors ■ Mine closure consulting ■ 3D Modelling
- Demolition consultants ■ Asbestos abatement

Liberty Industrial Pty Ltd A.B.N. 99 147 758 487



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GLOSSARY AND ABBREVIATIONS

ACM	Asbestos Containing Material
ALARP	Mitigate risk to “As Low As Reasonably Practical”;
ANZECC	Australian and New Zealand Environment and Conservation Council
ARCP	Asbestos Removal Control Plan
AWS	Automatic Weather Station
Code of Practice	A practical guide to achieve the standards of health and safety required under the model Work Health and Safety (WHS) Act and model WHS Regulations
Council	means Lithgow City Council.
DA	Development Consent (DA015/19) issued by Lithgow City Council on the 26th of September 2019
Environmental Aspect	means the interaction, relationship or impact of an operation or activity with the Environment including
Environmental Law	means any law relating to the storage, handling or transportation of waste, dangerous goods or hazardous materials including laws relating to workplace health and safety; or which has as one of its purposes or effects the protection of the Environment
Environmental Notice	means any direction, order, demand, license or other requirement from a Government Agency to take action or refrain from taking any action in respect of the Site or the DDR works in connection with any Environmental Law
EPA	Environment Protection Authority
HESQ	Health Environment Safety Quality
Liberty	Liberty Industrial
SEE	Wallerawang Power Station Demolition Statement of Environmental Effects (Aurecon 2018)
Site	means a project site or work area where the company is undertaking activities on behalf of a client
Standards	Standards are published documents setting out specifications and procedure
WWPS	Wallerawang Power Station
DEMP	Demolition Environmental Management Plan
PFAS	Per- and polyfluoroalkyl substances
NEPM	National Environmental Protection Measure
DDR	Decommission, Demolition and Rehabilitation
The Project	The Wallerawang Power Station Decommission, Demolition and Rehabilitation Project
NRAR	Natural Resource Access Regulator
EPL 766	Environment Protection Licence number 766

1 INTRODUCTION

1.1 PURPOSE

This Contaminated Land Management Plan (CLMP) has been prepared by Liberty Industrial (Liberty) on behalf of Greenspot for the Wallerawang Power Station (WWPS) Decommission, Demolition and Rehabilitation (DDR) Project (The Project) and will form part of the Demolition Environmental Management Plan (DEMP). Liberty is the principal contractor for the Project.

It is the policy of Liberty to ensure a high standard of care to minimise the impact on the environment, immediate work sites, and the local community.

This CLMP addresses the applicable requirements of:

- Applicable New South Wales and Australian Environmental Legislation;
- Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) March 2004 (reprinted 2006) (the “Blue Book”). Volume 1 and Volume 2. - Volume 2A
- Environment Protection Licence 766.

In addition to the requirements in this CLMP there are a number of development approval (DA) conditions that relate to waste, hazardous materials and contamination. Liberty will ensure that it (and its contractors) adhere to these conditions at all times when carrying out the Project. Specifically the DA includes the following conditions that are of relevance to waste and contamination in carrying out the DDR works:

- Condition 44 – waste materials must be managed on the site and disposed of at an approved waste management facility.
- Condition 52 – any areas of filled ground are to be clearly identified and surveyed and a copy of the appropriate plan provided to Council.
- Condition 53 – any areas of contaminated ground, including any land contamination caused by the proposed demolition works are to be clearly identified and surveyed and a copy of the appropriate plan provided to Council.
- Condition 54 – all demolished material and excess spoil shall be disposed of at a location and manner approved by Council.
- Condition 55 – removal of dangerous or hazardous materials shall be carried out in accordance with the applicable State legislation and recommendations by Worksafe Australia.

1.2 REVISION CHANGES OF THIS CLMP

Changes to the CLMP shall only be implemented with the approval of the Project Manager.

This CLMP will be revised to address learnings identified through continual improvement and as necessary.

1.3 DISTRIBUTION LIST

A controlled copy of this CLMP is to be distributed to the following parties for comment and review

- Liberty Industrial Directors, Senior Management, Project Manager, Project Engineer, HSEQ Manager and Site Supervisors;
- Greenspot Project Managers
- NSW Environment Protection Authority (EPA)

Once the CLMP has been approved, it will be integrated into the WWPS DEMP. A hardcopy of the DEMP will be kept onsite and updated as required by the Project Environmental Advisor, as well as a controlled PDF version being uploaded into the project management database. All Contractors and Subcontractors will be provided a copy to ensure their works are consistent with the DEMP.

1.4 LEGISLATION, STANDARDS AND CODES OF PRACTICE

The contractor commits to comply with all relevant sections of legislation, policies, Licences, guidelines and standards applicable to the project and are listed below;

- Environment Protection Licence (EPL) 766
- AS/NZS ISO 19011:2014 – Guidelines for Auditing Management Systems
- Australian Standard AS 2601:2001: The Demolition of Structures
- State Environmental Planning Policy No. 55 – Remediation of Land;
- Contaminated Land Management Act 1997
- National Environmental Protection Measures (NEPM)
- Protection of the Environment Operations (POEO) Act 1997
- Environment Protection Manual for Authorised Officers: Bunding and Spill Management, Technical Bulletin (Environment Protection Authority, 1997).
- Waste Classification Guidelines (CoA Department of Climate Change and Water 2009)
- AS ISO 10002-2006 Customer satisfaction – Guidelines for complaints handling in organisations (ISO 10002:2004, MOD)
- Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004).
- Acid Sulfate Soils Management Advisory Committee August 1998 (ASSMAC 1998)
- Acid Sulfate Soil and Rock – Victorian EPA Publication 655.1 – July 2009 –
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000).
- Department of Environment and Conservation (DEC): Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers - Technical section "Bu" November 1997. –

- National Code of Practice for the Storage and Handling of Workplace Dangerous Goods [NOHSC: 2017 (2001)]

2 PROJECT BACKGROUND

Wallerawang Power Station (WWPS) is a former coal-fired power station owned by Greenspot Wallerawang Pty Ltd (Greenspot). WWPS is located adjacent to the township of Wallerawang, approximately 14 kilometres (km) from Lithgow and 160 km west of Sydney, in the Central Tablelands of NSW. WWPS began operation in 1957, initially consisting of four 30 megawatt (MW) units, with two 60 MW units being added in 1961 and 500 MW units being added in 1976 and 1980. The 30 MW and 60 MW units were decommissioned in the 1990's and their above ground infrastructure was salvaged or demolished at that time.

In November 2014, EnergyAustralia announced it would permanently close WWPS due to ongoing reduced energy demand, lack of access to competitively priced coal and the power station's high operating costs. The WWPS has since been deregistered as an electricity generation facility with EnergyAustralia commencing some DDR activities. In September 2020, Greenspot acquired the WWPS site and surrounding buffer lands from EnergyAustralia. The last of the decommissioning works and completion of the Project will be undertaken by Greenspot with Liberty as the principal contractor.

The Project will take approximately two years to complete, commencing on site in the first half of 2021.

Under current plans, key infrastructure on site will be retained including the turbine hall structure, cooling tower, coal dome and administration building.

In parallel with completing the Project, Greenspot will progress with their development of an industrial park concept plan for the WWPS site and buffer lands, seeking approvals for a variety of uses.

Greenspot's primary objective is to revitalise what would otherwise be a stranded asset, and in doing so, to generate opportunities for economic activity and employment. The desired outcome is a hub of economic activity of which the local community and the broader region is justifiably proud.

2.1 PROJECT OBJECTIVES

The objectives of the Project are to:

- maximise the recovery of valuable resources in a safe, environmentally-compliant, cost effective and timely manner
- protect the workforce from exposure to hazards and risks
- protect the surrounding environment and community from avoidable impacts in compliance with the development approval and EPL.

Liberty, as a licensed demolition contractor, will prepare and implement a variety of management plans and a demolition work plan consistent with AS2601-2001.

2.2 GENERAL DESCRIPTION OF THE SITE AND WORK DOMAINS (ZONES)

The description of the site and work domains is provided in 2.1 of the DEMP.

2.3 LITHOLOGY/GEOLOGY

The site lies on the western edge of the Sydney Basin with regional geology underlying the site reported as Permian age siltstone, lithic sandstone and conglomerate of the Shoalhaven group (ERM, 2014). Borehole logs from previous environmental investigations undertaken at the site reported sandy clay layers to between 5 and 7 metres below ground level underlain by shale and sandstone. Coal deposits of thickness between 0.5 and 1.5 metres were also reported to be interspersed with the shale mudstone, siltstone and claystone at depths between 7 and 15 metres on some borehole logs.

2.4 HYDROGEOLOGY

Regional groundwater flows are expected to flow to the east following the dip of sedimentary deposits. Localised groundwater flow direction beneath the site is expected to flow towards the Coxs River (which bisects the site) and Lake Wallace to the south. Surface waters flow to Lake Wallace.

2.5 SENSITIVE RECEPTORS

Relevant sensitive receptors identified are:

- Workers at the site.
- Nearby residents and groundwater users.
- Recreational users of Lake Wallace.
- Aquifers beneath the site and nearby groundwater extraction bores.
- Ecological receptors within local creeks, Coxs River and Lake Wallace.

3 CONTAMINATION STATUS

3.1 AURECON 2017 CONTAMINATION RISK ASSESSMENT

A number of contamination assessments have been previously prepared for the WWPS and surrounding buffer lands, including:

- Stage 2 Environmental Site Assessment , Project Symphony – Wallerawang, April 2014 (ERM, 2014)
- Jacobs PFAS Investigation, Wallerawang Power Station, 19 February 2019 (Jacobs, 2019)
- Wallerawang Power Station – Southern Site, Baseline comparison assessment, 25 March 2020 (ERM, 2020)
-

The ERM (2020) report, being the most recent contamination assessment of the site, did not identify any potential risks to human health or the environment and concluded that the site is

suitable for ongoing commercial/ industrial use, provided appropriate ongoing management measures are implemented.

Key contaminants identified by ERM include metals in groundwater, metals in surface water and sediments, and asbestos in surface soils (in Area WA & WG). The heavy metal contamination located beneath the WWPS was considered not likely to pose any risks to human health based on there being no direct contact with groundwater. Additionally, the groundwater quality beneath the site is considered to be most likely attributable to background levels as a result of the highly mineralised geology. This is evidenced by the levels reported at wells deemed to be background. Surface waters do not appear to be significantly impacted and monitoring of historical discharges from the site have shown compliance with the EPL 766 (noting that the site is no longer a discharge site following variations to the EPL in 2020). ERM also concluded that the risk to human health and/or sensitive ecological receptors from surface waters contained within onsite settling/ holding ponds is considered to be low.

Asbestos is also known to occur within power station structures, and within pipework and paintwork in some areas. Identified asbestos was likely to be indicative of localised impact associated with historical land use practices/ demolition works and was not considered to be representative of widespread significant asbestos contamination of the site. ERM recommended that where intrusive works are undertaken within areas WA and WG consideration should be given to implementation of environmental/ safety management processes and procedures for working with asbestos. Asbestos removal procedures for the Project are addressed in a separate Asbestos Removal Control Plan.

3.2 JACOBS PFAS INVESTIGATION

Jacobs Group (Australia) Pty Ltd (Jacobs) were commissioned by EnergyAustralia NSW Pty Ltd (EA) to undertake a poly-fluoroalkyl substances (PFAS) investigation at the Site.

The stated objectives of the PFAS investigation were to:

- Assess the nature and extent of PFAS contamination at the site (targeting areas of known and potential use) and within off-site up gradient and down gradient waterways.
- Collect information to support a preliminary assessment of risks associated with any contamination.
- Conduct an investigation compliant with EPA endorsed contaminated site and PFAS guidelines.

The investigation involved the collection of representative soil, groundwater, sediment and surface water at selected on and off-site locations for PFAS analysis.

Results of the investigation concluded that:

- PFAS compounds were detected above LOR in soil sampled from within known on-site AFFF use areas (historical fire training area, fuel oil tank deluge system, extinguisher discharge areas and current storage locations).
- PFAS contamination was not detected above the assessment criteria in soils at locations where PFAS products were not known to have been used.
- Three groundwater wells (WEMW11, WM-MW04 and WM-MW07) returned results which exceeded the adopted guideline criteria for the protection of human health (drinking water).
 - It was the opinion of Jacobs that as these wells were located on-site, groundwater on-site is not used as a potable resource and the nearest potential potable groundwater user is located 1 km south east of the site (which is not directly hydraulically down gradient of the site), that PFAS compounds are unlikely to be detectable above the LOR within the potential potable groundwater well located down gradient from the site.
- Groundwater samples (collected following regional rainfall) did not report PFAS concentrations above the adopted guideline criteria for the protection of human health (recreational use) or ecological receptors (fresh water ecosystems) from both on and off-site groundwater well locations.
- Sediment samples collected from on-site surface water features and waterways up and downgradient of the site did not report PFAS concentrations above the adopted guideline criteria for the protection of human health (commercial/industrial land use: on-site and residential land use: off-site) and ecological receptors (commercial/industrial land use).
- Surface water samples collected from on-site dams/ponds and waterways up and downgradient of the site did not report PFAS concentrations above the adopted guideline criteria for the protection of human health (drinking water and recreational use) and ecological receptors (fresh water ecosystems).

Based on the conclusions detailed above, Jacobs considered that no further works were required to meet the objectives of the investigation.

4 POTENTIAL IMPACTS

Based on the proposed site works being demolition to slab level with hardstands remaining and filling of voids with imported VENM or suitable resource recovered material, the Project is unlikely to result in disturbance of existing ground contamination and the potential for contamination impacts is considered low.

Nonetheless the following potential impacts have been identified;

- Accidental spills, releases, handling or disposal of hazardous materials including asbestos or hazardous excavated materials (if any excavation is required to be carried out as part of the Project, which is considered unlikely);
- Exposure of contaminated soils and/or groundwater to humans (Construction personnel, Project team, or nearby communities);
- Mobilisation of surface and subsurface contaminants, including groundwater and/or surface water contamination;
- Exposure of contaminants to flora and fauna;
- Release of odours from contaminated materials.

5 CONTAMINATED LAND MITIGATION MEASURES

Based on a review of the Project risks as identified above and the existing site data, the following mitigation measures have been developed for the Project.

Reference No.	Action	Responsibility	Timing
CLM1	Training will be provided to all Project personnel, including relevant subcontractors on potential contamination and asbestos risks and the requirements from this plan through inductions, toolboxes and targeted training	Project Manager	Prior to demolition
CLM2	During excavations (if required) all fill material will be visually monitored by the plant operator to identify any potential contaminated material or soils. All personnel will be made aware of the areas of environmental concern for the site and visual identification in the induction prior to commencement of work onsite. Disturbance of known or potential contamination areas will be avoided as much as reasonably practicable.	Site Supervisor	Project duration
CLM3	Imported fill will be VENM or a suitable resource exempted approved material.	Project Engineer	Prior to importation
CLM4	If any suspected or potential contamination is exposed or encountered (including but not limited to odorous or visually contaminated materials) during construction all work activities within the vicinity of actual or suspected contaminated land will cease and the Unexpected Finds Procedure (Appendix A) will be implemented.	Site Supervisor Project Manager	Project duration

CLM5	Potentially contaminated materials will be segregated into separate stockpiles that are adequately signposted with the source location of the materials on site recorded. The stockpile will be managed in accordance with DEMP/SWMP and based on a risk assessment approach.	Site Supervisor	Project duration
CLM6	Potentially hazardous and contaminating activities including use of major equipment will be conducted in bunded areas away from watercourses and other environmentally sensitive areas.	Site Supervisor	Prior to demolition
CLM7	Any contaminated waste will be handled, separated, contained, managed and disposed of to prevent migration and further contamination. It will be disposed of at a suitably licensed facility	Site Supervisor Project Engineer	Project duration
CLM8	If any potential asbestos is found during demolition, site personnel will implement the Asbestos Removal Control Plan.	Site Supervisor Project Engineer	Project duration
CLM9	If any pollution or contamination occurs during the Project the relevant procedures in the EPL, the site Pollution Incident Response Management Plan, the CLM Act and/or the POEO Act as applicable will be implemented.	Site Supervisor	Project duration
CLM10	Sediment Basin Testing of Water and Sediments shall be as described in the SWMP	Project Engineer	Prior to discharge or removal

6 COMPLIANCE MANAGEMENT

6.1 ROLES AND RESPONSIBILITIES

Roles and responsibilities will be conducted as outlined in Section 5.2 of the DEMP.

6.2 TRAINING

All employees, contractors and sub-contractors working on site will undergo site induction training relating to potential land contamination management issues. The induction training will address elements related to contaminated land management including:

- Existence and requirements of this CLMP
- Relevant legislation.
- Procedure to follow in the event of a contamination find during construction works

If contamination is unexpectedly discovered onsite, all workers involved in the remediation or removal will receive a toolbox talk informing them of the Site specific controls required for remediation process including:

- Site access restrictions

- Correct use of PPE
- Decontamination procedures
- Use of monitoring equipment
- Waste handling procedures
- Water quality and leachate controls
- Dust control measures and performance measures
- Further details regarding staff induction and training are outlined in Section 6 of the DEMP.

6.3 MONITORING, INSPECTION AND TESTING

Monitoring and inspections shall be carried out as per 8.2 of the DEMP

APPENDIX A UNEXPECTED DISCOVERY OF CONTAMINATED LAND PROCEDURE

Step 1. Potential contaminated soil/material encountered during Construction activities

If potential contaminated soil/material is encountered during excavation/Demolition activities:
Cease work in the immediate/affected area

- The Site supervisor will immediately notify the Project Manager (PM). The PM will notify the Greenspot site representative.
- Install environmental controls around the site to contain the contaminated material, including diversion of water to minimise potential spread via surface water runoff.
- If it is determined that there is a material risk of environmental harm from the potential contamination, the EPA will be notified immediately consistent with section 9.1 of the DEMP.
- Recommence works in an alternate area where practicable.

Step 2. Environmental management and work health safety management

Prior to any contamination investigation, management or remediation activities, appropriate Safe Work Method Statements (SWMS) and JSEA will be prepared for review and approval by the Project Manager

Personal Protective Equipment (PPE) will be worn as per the relevant Material Safety Data Sheet/s or potential contaminants

Step 3. Undertake a site/area contamination investigation

A suitably qualified contamination specialist to undertake a contamination investigation in the area of the find to assess the unexpected find

Step 4. Remedial action

Remedial action will be undertaken based on the assessment of the unexpected find

Step 5. Recommence works

Recommence works once remedial works have been implemented and sampling has validated that the remediation strategy has been successful.