Submission No 75

INQUIRY INTO COSTS FOR REMEDIATION OF SITES CONTAINING COAL ASH REPOSITORIES

Organisation: Wollongong City Council

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city of innovation

WOLLONGONG CITY COUNCIL
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The Chair
The Hon Daniel Mookhey MLC
NSW Upper House
Public Works Committee

Our Ref: Z20/32224
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Dear Sir / Madam

COST FOR REMEDIATION OF SITES CONTAINING COAL ASH REPOSITORIES

Wollongong City Council holds a substantial interest in the remediation of sites containing coal ash repositories due to the long history of heavy industry in the Wollongong Local Government Area. Of particular note are the three ash ponds affiliated with the coal powered Tallawarra Power Station which ceased operations in 1989.

This submission addresses Wollongong City Council's concerns around the neglect of legacy sites which may be continuing to disperse contaminants into the surrounding environment, potentially impacting on environmental and human health of the area and the ability for sites to be repurposed for other land uses. The considerations discussed in this submission highlight the need for improvements to mechanisms such as guidelines and standards to mandate adequate remediation of coal ash repositories in New South Wales. They also indicate the necessity for stricter Environmental Protection Licence conditions and more standardised groundwater monitoring procedures.

It is essential that the NSW government recognises the importance of establishing stronger guidelines and licence conditions, greater support for the reuse of coal ash, the creation of employment opportunities through the remediation of coal ash repositories, and the need for further research into the potential long-term impacts of contamination from coal ash on the environment and human health. These requirements need to be fulfilled in order to ensure the mitigation of risks and liabilities for government, communities and the environment.

Please contact Renee Winsor, Environmental Planning Manager should you require further information.

This letter is authorised by

Chris Stewart
Manager City Strategy
Wollongong City Council

Submission RE: Government inquiry into the Costs for Remediation of Sites Containing Coal Ash Repositories

Our key points in this submission are:

- Prioritise remediation efforts in order to prevent further potential impacts on the environment and human health
- Creation of employment opportunities through the remediation of coal ash repositories
- Greater support for the reuse of coal ash
- The need for stricter guidelines, standards and licence conditions for the remediation of sites containing coal ash repositories
- Further research into the long-term impacts of contamination from coal ash repositories on the environment and human health

Introduction

Wollongong has long been a heavy industry precinct, home to coal mining and use for a variety of industrial purposes, producing waste such as coal ash. Wollongong has a number of coal ash repositories, of particular interest are those created in relation to the coal powered Tallawarra Power Station, which ceased operations in 1989. This location contains three ash ponds which were filled with coal ash waste during the operation of the coal-powered station, two of which are capped and have been revegetated, the third filled with water (Coffey Environments, 2012). The location of these ash ponds is in proximity to several surface and ground water sources, of particular importance Lake Illawarra, Duck Creek and two main aquifer systems, and is also nearby public access areas, residential areas and grazing land (Coffey Environments, 2012). Coal ash waste created by coal-fired power stations for the generation of electricity can contain contaminants such as heavy metals, and this is of concern (NSW EPA, 2017). There are concerns that once this waste is placed in such things as ash ponds, it may have the potential to contaminate the land due to the likelihood of the presence of heavy metals and other toxic materials, and for this contamination to then have impacts on a broader area (Monash University, 2018).

The ash ponds located at the Tallawarra site are likely to be a source of heavy metal contaminants, therefore it is essential that strong consideration is given to precautionary methods of remediation so as to not create preferential pathways for contaminant migration into water sources, and so the land is useable for potential future developments (Coffey Environments, 2012). Wollongong therefore has a vested interest in the remediation, regulation and potential reuse opportunities posed by coal ash.

Prospective and/or current quantum of government liability for remediating contamination at a number of sites

It is essential that the NSW government recognises the remediation of sites containing coal ash repositories as a high priority so as to minimise any further potential contamination of the immediate and broader environment and the impacts this may have on communities and the repurposing of land. The methods implemented in the past to contain and store coal ash for the long-term were in many cases inadequate or not applied at all, and this has led to potentially contaminated land and groundwater in these locations (Power Engineering, 2014). Over time, containment structures can degrade if not established and maintained effectively; this may increase the likelihood of waste storage facilities such as ash ponds in polluting the environment.

Coffey Environments have undertaken groundwater assessments at the location of the coal ash repositories in the Tallawarra Lands area, along with geotechnical and contamination investigations, looking at the potential impact that these ash dams may have on the environment. Their 'Geotechnical, Contamination and Groundwater Investigation Tallawarra Lands, Yallah, NSW' (Coffey Environments, 2010) found that the ash ponds "contained fly ash hydraulically placed from the former coal fired power station between about 5m-11m deep…with significant quantities of ash placed into these dams". In 2012, Coffey Environments report 'Groundwater Modelling Assessment Report – Ash Ponds Tallawarra Lands, Yallah, NSW' determined that the "groundwater quality at Tallawarra Lands: assessments identified elevated concentrations of heavy metals". The groundwater assessment determined that the one of the aquifers affiliated with this area potentially discharged water into a number of surface water bodies such as Duck Creek and Lake Illawarra, through evapotranspiration by vegetation and evaporation from pond water (Coffey Environments, 2012).

These findings suggest the need for adequate and timely remediation efforts in order to minimise further impacts on the environment, with this reducing risks to humans and the liability of government. This can only occur if effective guidelines and standards are in place to: mandate how remediation must occur, clearly outline who is responsible for the costs, and establish requirements for monitoring during and after the remediation process. There is also a strong need for funding for these remediation efforts.

Economic and employment opportunities associated with coal ash reuse, site remediation and repurposing of land

There are a number of benefits that can be gained from the remediation of sites containing coal ash repositories, particularly the reuse of coal ash and the repurposing of land. The remediation of these sites involves a number of processes and stages which could provide employment opportunities, such as initial assessment and evaluation of the site, on ground

works, and ongoing monitoring of the effectiveness of remediation efforts (Monash University, 2018).

Currently, there is minimal reuse of coal ash in Australia, therefore requiring this waste to be stored in ash dams. This may be due to a lack of market demand for this resource or based upon constraints around the reuse of material that may contain contaminants (Department of Environment and Energy & Blue Environment Pty Ltd, 2017). Monash University (2018) found that in 2016, over 55% of ash produced in the country was stored in ash ponds and other similar containment structures. By supporting and providing opportunities for the reuse of coal ash waste, this can lead to a number of environmental and economic benefits such as (EPA US, 2019):

- Reduced need for other materials
- Reduced disposal in, and therefore reducing damage to, the environment
- Reduce greenhouse gas emissions
- Reduced costs associated with the storing of coal ash
- Profit from the sale of coal ash

Without effective remediation, the repurposing and development of land can be made difficult, potentially affecting community assets and causing the 'lock up' of large parcels of land that could be used for more beneficial purposes.

Adequacy and effectiveness of the current regulatory regime for ensuring best practice remediation of coal ash repositories and;

There are several considerations that must be taken into account when remediating or closing a coal ash repository, and these need to be catered for within the regulatory regime that oversees this process. Some of the considerations include (Power Engineering, 2014):

- Market demand/value for coal ash
- Withstanding environmental and human health impacts
- Potential future land use of the site
- Location to environmentally sensitive or community areas
- Geotechnical and biological factors
- Cost and availability of resources needed for remediation

These considerations highlight the need for clearer and more effective guidelines and standards that mandate the appropriate remediation of coal ash repositories, ensuring that best practice is carried out during this process (Environmental Justice Australia, 2019). It is imperative that standardised groundwater monitoring procedures are established in these standards (Environmental Justice Australia, 2019). Due to the NSW EPA's regulatory responsibilities for pollution that may arise from dams in NSW under the Protection of the Environment Operations Act 1997 (POEO Act) (NSW EPA, 2017), it is essential that stricter

Environmental Protection Licence conditions are put in place for those responsible for these sites in order to achieve greater compliance and therefore improved environmental and human health outcomes (Environmental Justice Australia, 2018).

Risks and liabilities associated with inadequate remediation including community and environmental health impacts

There are several risks and liabilities government face if inadequate, or no, remediation occurs for sites containing coal ash repositories. Potential further contamination from these sites may occur if they are not remediated appropriately and if there is a lack of long-term monitoring to ensure that remediation efforts have been successful. In order to prevent potential impacts on the environment and human health and therefore protect water resources, air quality and open up the opportunity for future use of the land, best practice must be carried out when remediating these sites (Environmental Justice Australia, 2019).

Coal ash can contain a number of contaminants such as aluminium, manganese, sodium and various traces of other metals, dependent upon the properties of the coal itself and the methods and conditions of combustion (NSW EPA, 2017). The various contaminants that have been detected in coal ash have been found to be related to a number of health issues in humans such as asthma, cancer and stroke (Environmental Justice Australia, 2019).

It is essential that further research is undertaken in relation to the various aspects of the remediation of these sites, such as withstanding biological impacts derived from contamination, the human health impacts that may arise due to contact with contaminated soil and water, and the cost-effectiveness of different remediation methods (Environmental Justice Australia, 2019). Sites may be located in areas that are or are now considered as environmentally sensitive or may be located nearby areas used by the community, so it is imperative that remediation efforts are carried out in an appropriate and timely manner in order to reduce further impacts on environment and human health, minimising government liabilities affiliated with this. In Wollongong, Lake Illawarra, which is used for a number of purposes including recreational use, is a potential receiving body of water that could be impacted upon by the coal ash ponds created during the operation of the Tallawarra coal-powered station. Future land uses and developments for the Tallawarra lands are could include residential areas, employment and tourism areas, and environmental and open space purposes, so it is essential that adequate remediation is carried out at such sites (Coffey Environments, 2012).

References

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