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The Hon. Daniel Mookhey MLC
Chair, Public Works Committee
Parliament House
Macquarie Street
SYDNEY NSW 2000

Email: public.works@parliament.nsw.gov.au

Attention: Mr Mookhey

Dear Mr Mookhey

I am writing to you in relation to the third Public Hearing of the Public Works Committee inquiry into Costs for remediation of sites containing coal ash repositories held on 16 October 2020. The NSW Environment Protection Authority (EPA) was represented by Mr David Fowler and Mr Adam Gilligan and at the hearing they took several questions on notice on behalf of the EPA.

I am pleased to provide the attached information in response to the questions on notice. If you have any further inquiries, please contact Mr David Fowler, Executive Director Regulatory Practice and Environmental Solutions on [redacted] or on email at [redacted].

Yours sincerely

TRACY MACKEY
Chief Executive Officer

EPA response to Questions on Notice

Public Works Committee inquiry into -
COSTS FOR REMEDIATION OF SITES CONTAINING COAL ASH REPOSITORIES

Question on Notice

The CHAIR: Okay. I might be forward, perhaps, in asking you to provide us with the licences on notice in respect to all the ash dams that are part of our terms of references or any other ash dam that you feel, as well.

Mr FOWLER: Most certainly.

Copies of Environment Protection Licences for the following coal fired power stations, that have an ash dam, including both operational and non-operational power stations, are attached as 'pdf' files:

- AGL Bayswater (operational)
- AGL Liddell (operational)
- Delta Electricity Vales Point (operational)
- Energy Australia Mount Piper (operational)
- Origin Energy Eraring (operational)
- Munmorah (non-operational)
- Wallerawang (non-operational)

Question on Notice

Ms ABIGAIL BOYD: Are there any load-based fees in relation to the pollutants in ash dams, or are they only in the stacks?

Mr FOWLER: No, it is only in relation to air discharges and—I would have to confirm but I think— water discharges offsite, not material placed in the ash dam and remaining onsite.

Ms ABIGAIL BOYD: So only if it leaches out?

Mr FOWLER: No, only if it is discharged through surface waters.

Ms ABIGAIL BOYD: Okay.

The load-based licensing (LBL) scheme charges a fee for the load of the pollutants that are specified for activities that are included in the scheme. The *Protection of the Environment Operations (General) Regulation 2009* sets out the pollutants that attract a fee for each activity and the Load Based Licensing Protocol sets out how fees are to be calculated.

The LBL scheme fees apply to pollutants in both air and surface water discharges.

The scheme does not apply to pollutants that may potentially leach from sites.

Question on Notice

The CHAIR: For the 4 September event, yes? The pipeline event?

Mr GILLIGAN: Correct. And with respect to the coal ash order, there are certainly provisions related to training, et cetera, payment of costs—excuse me, I am just looking to locate the figure—it is an undertaking to contribute funds towards the Upper Hunter installation of an air quality device and a weed eradication project.

But, unfortunately, I do not have the precise amount.

The CHAIR: On notice, can you do that?

Mr GILLIGAN: Certainly.

- In relation to the coal ash order, AGL notified the EPA on 17 January 2019 that it had failed to comply with the Coal Ash Order in relation to testing requirements for coal ash.
- In response, AGL entered into an Enforceable Undertaking. Under the terms of the Enforceable Undertaking AGL paid \$82,000 to the NSW Department of Planning, Industry and Environment to assist with the installation of air monitoring equipment in the Upper Hunter which will contribute to the state-wide air quality monitoring network. AGL also contributed \$18,000 to the Singleton Shire Landcare Network for use towards the Col Fisher Park Weed Eradication Project.
- AGL also paid the EPA's investigation and legal costs of \$37,356 as well as carrying out staff training and placing notices about the Enforceable Undertaking in local media.

Question on Notice

Mr GILLIGAN: What we are using there is looking at pollution reduction studies to better understand why those exceedances are there, require the company to do further work to characterise that and, if there is a need for further rectification works to address it, then that is certainly something that we will consider.

The CHAIR: On notice, are you able to provide us with as much detail as you can about what remediation you have ordered in respect to which dams?

Mr GILLIGAN: Yes.

The EPA advises that the following Pollution Reduction Programs and Studies have been required in respect of the operation of coal fired power station ash dams.

Vales Point Power Station (Environment Protection Licence 761)

- Pollution Reduction Study requiring a study of Wye Creek and diversion channel to determine extent of estuarine waters; and identify appropriate location for discharge of saline waters from premises so that freshwater systems are not impacted.
Completed: 30 April 2012
- Pollution Reduction Program to implement mitigation measures to reduce impact of discharge from ash dam in the Wye Creek diversion channel to reduce the impact of saline water discharge on the freshwater system.
Completed: 30 April 2012
- Pollution Reduction Study requiring an investigation of groundwater quality in vicinity of Ash Dam to determine any impact and associated mitigation measures.
Completed: 21 October 2015
- Special Condition included requiring the licensee undertake and report on a groundwater assessment of any localised induced changes to groundwater flow and quality caused by the Vales Point Power Station Ash Dam in the vicinity of and near to Lot 421; DP 578194.
To be completed: 31 December 2021.

Ering Power Station (Environment Protection Licence 1429)

- Pollution Reduction Program requiring civil diversion works to reduce stormwater flows into the ash dam to reduce the possibility of overflows and resultant discharges of selenium.
Completed: 30 June 2006.

Liddell Power Station (Environment Protection Licence 2122)

- Pollution Reduction Study requiring an assessment of water management systems associated with ash dam and provide report on the better management of the ash water.
Completed: 17 December 2013
- Pollution Reduction Program requiring an upgrade to ash line settling pond to minimise risk of overflow from this pond to Tinkers Creek.
Completed: 17 December 2013.
- Pollution Reduction Program requiring an upgrade of ash line settling pond.
Completed: 30 September 2016.
- Pollution Reduction Study requiring the licensee to undertake a review of the water management systems related to coal handling areas and other potentially impacted water capture areas on the premises (the Liddell Water Management System Review).
Completed: 1 September 2020.
- Pollution Reduction Study requiring the licensee to undertake a review of external plant assets (including ash pipelines) on the premises to identify and implement appropriate mitigation measures to minimise potential environmental impacts resulting from asset strategy, physical condition assessment and maintenance delivery (Asset Environmental Management Review).
To be completed: 31 December 2021.

Bayswater Power Station (Environment Protection Licence 779)

- Pollution Reduction Study reviewing the ash dam water management to maximise storage capacity.
Completed: 27 September 2013.
- Pollution Reduction Study requiring an assessment of all waste streams disposed to the ash dam.
Completed: 25 July 2014.
- Pollution Reduction Program requiring the replacement of the Ravensworth Ash Pipeline.
To be completed: 30 June 2022.
- Pollution Reduction Study requiring the licensee to undertake a review of the water management systems related to coal handling areas and other potentially impacted water capture areas on the premises (the Bayswater Water Management System Review).
Completed: 1 September 2020.
- Pollution Reduction Study requiring the licensee to undertake a review of external plant assets (including ash pipelines) on the premises to identify and implement appropriate mitigation measures to minimise potential environmental impacts resulting from asset strategy, physical condition assessment and maintenance delivery (Asset Environmental Management Review).
To be completed: 31 December 2021.

- Pollution Reduction Study requiring the licensee investigate the impact of potential seepage to the south of the Bayswater Ash Dam that is captured by the existing seepage system.
To be completed: 31 March 2021.

Mount Piper and Wallerawang (Environment Protection Licences 13007 & 766)

The EPA provides input to planning consent processes related to power stations and planning consents set out operational management and rehabilitation of ash repositories associated with the Mt Piper Power Station and the decommissioned Wallerawang Power Station.

The construction and operation of both Mt Piper ash repositories are authorised under project approvals issued by the NSW Department of Planning & Environment. Specifically, DA09_0186 for Lambert's North ash repository requires the preparation of a long-term ash management strategy that includes a goal of 40% reuse of ash by 31 December 2020 and requires the preparation of a rehabilitation management plan that outlines measures to stabilise and rehabilitate the site following project completion. Conditions are also included in the project approval for the Kerosene Vale ash repository associated with the decommissioned Wallerawang Power Station for the specific type of capping material that is suitable to remediate the AR.

Environmental monitoring to identify pollutants moving from ash repositories into nearby waterways are also required in project approvals for the Kerosene Vale Ash ash repository and the Mt Piper ash repository. This monitoring has resulted in identification of groundwater pollution arising from the Mt Piper ash repository, with a draft remediation strategy being prepared to address and remediate local groundwater.

Question on Notice

The CHAIR: Thank you. Also on notice, are you able to provide us with the infringement notices issued by premise by year of the ones that you have just mentioned?

Mr GILLIGAN: Yes.

Over the last five years the EPA has issued the following infringement notices for the following premises that are relevant to the inquiry terms of reference:

Delta Electricity:

- two penalty notices issued in 2020 (with a total financial penalty of \$30,000) in response to the alleged receipt of asbestos and other waste at the coal ash dam by contractors at the Vales Point power station.

Origin Energy:

- three penalty notices (in 2017, 2019 and 2020 for a total financial penalty of \$45,000) in response to the alleged emission of dust from the coal ash dam on three separate occasions at the Eraring power station.

AGL Macquarie:

- a penalty notice (in 2020 with a total financial penalty of \$15,000) in response to the alleged emission of dust from the coal ash dam at Liddell power station.
- two penalty notices issued in 2018 and 2020 (with a total financial penalty of \$30,000) in response to ash overflows or other ash related issues at Liddell power station.

- two penalty notices in 2015 for Bayswater power station – one for pH limit exceedances, one for failure to maintain equipment in a proper and efficient condition
- in 2016 one penalty notice for an ash transfer leak related to discharge of saline water to the Hunter River at Bayswater power station.
- In 2019 two penalty notices (with a total financial penalty of \$30,000) in response to an unauthorised discharge of diesel from the day tanks at the Bayswater power station.
- a penalty notice (in 2019 with a total financial penalty of \$15,000) in response to an unauthorised discharge from the lime softening plant at the Bayswater power station.

Question on Notice

The CHAIR: What is the advice that you give about consumption of crabs and fish from Lake Macquarie?

Mr GILLIGAN: Fish are fine, with the standard restrictions around consumption of fish, which I do not have before me. But that is generally the limiting factor there is around mercury in fish, more broadly. With respect to cadmium, it is a certain number of serves per week that differs between adults and children. Again, we can provide that on notice if you would like.

Sampling of fish for PFAS and heavy metals in Lake Macquarie, that commenced in 2017, found cadmium at levels above relevant screening criteria in crabs. To minimise exposure to cadmium, it is recommended that consumption of crabs caught in Lake Macquarie should be limited to:

- Three servings per month for a child less than six years of age (one child's serving equates to 75 grams of edible crab meat)
- Six servings per month for all other ages (one serving for all other ages equates to 150 grams of edible crab meat).

The Food Standards Australia and New Zealand (FSANZ) general advice that people can safely consume 2-3 serves of seafood a week as part of a balanced diet. This level of consumption is protective for exposure to mercury and selenium for seafood consumed from the Lake Macquarie area.

Question on Notice

The CHAIR: We have had multiple people provide us with different views as to the quality of each form of remediation that is possible. It would be really helpful for me if we could hear from the EPA, on notice, as to its assessment of what methods exist and the quality of those methods. It would be really useful. Given that we have been invited to make submissions as to what they are, it would be helpful to have the EPA's expertise.

Mr GILLIGAN: We are certainly happy to provide that.

The National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) sets out a nationally consistent approach for the assessment of contamination. Under NEPM a site assessment should be carried out to determine whether site contamination poses a threat to human health or the environment and whether it is of significant magnitude to warrant remediation.

The NEPM is clear that the assessment of site contamination should consider a hierarchy of options for site clean-up and/or management. This assessment should be part of broader site assessment and management process. The NEPM emphasises that the appropriate option at a site will vary depending on a range of local factors.

The options chosen for site clean-up should include on-site or off-site treatment to reduce risk to an acceptable level. If that is not practical, the contamination should be isolated on site through the containment of contaminated soil and through removal of contaminated material to an approved site or facility. If the assessment indicates remediation would have no net environmental benefit or a net negative environmental impact an appropriate management strategy should be adopted.

When deciding which option to choose, the sustainability (environmental, economic and social) of each option should be considered in order to achieve an appropriate balance between the benefits and effects of implementing the option. If there is no readily available or economically feasible method available, then regulatory controls or other forms of remediation could be adopted.

Question on Notice

The CHAIR: Do you have one at Lithgow, by the way?

Mr FOWLER: No, I do not think—

Mr GILLIGAN: I think Lithgow was part of our recent Blue Mountains study, which was only for 12 months. I do not believe there is an ongoing site there.

Mr FOWLER: Can we take it on notice? Some work has been done up in the Blue Mountains in particular around a temporary air quality monitoring station. I just have in the back of my mind that there may be something in Lithgow. It may not be the full-blown station. They are quite complex units.

There is no permanent air quality monitoring station in Lithgow. A study of air quality in the Blue Mountains monitored a 12-month period from May 2019 to May 2020. This study included a temporary indicative monitoring site in Lithgow.

Question on Notice

The CHAIR: On notice, is it possible that you can tell us the cost of an e-monitoring station and, equally, the mobility of them by tier or I guess the quality of the station?

Mr GILLIGAN: Yes.

- An air quality monitoring station that is capable of monitoring a full suite of air quality indicators in line with National Environment Protection Measure (NEPM) health goals (which includes particles - PM 2.5, PM 10, gases - NOx, SO2, CO and ozone plus meteorological parameters) costs approximately \$320,000 to build and establish and \$35,000 to operate per annum (not including quality assurance and reporting costs)
- An emergency monitoring pod built to the same NEPM reporting standards costs approximately \$220,000 to build. These can be deployed and operated anywhere in the state within 48-hrs.
- Tier-2 monitoring (not to NEPM standard but used for indicative monitoring) for emergencies using the technology used to track dust in western NSW cost approximately \$36,000 per node. These can be deployed anywhere within 24-hrs.