

**Undertaking to the NSW Environment Protection Authority given  
for the purposes of Section 253A of the Protection of the  
Environment Operations Act 1997**

**Bayswater Power Station - Ravensworth Ash Line Event**

**AGL Macquarie Pty Limited (ACN 167 859 494)**

## PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997 (NSW)

### BY AGL MACQUARIE PTY LIMITED

#### 1. BACKGROUND

- 1.1. The NSW Environment Protection Authority (**EPA**) is a statutory body created by the *Protection of the Environment Administration Act 1991* (NSW) which has primary responsibility for the administration and enforcement of the *Protection of the Environment Operations Act 1997* (NSW) (**POEO Act**).
- 1.2. AGL Macquarie Pty Limited (ACN 167 859 494) (**AGL Macquarie**) owns and operates the Bayswater Power Station, which is located in the Hunter region in NSW.
- 1.3. AGL Macquarie is the holder of Environment Protection Licence no. 779 (**EPL**) issued under the POEO Act in relation to Bayswater Power Station.
- 1.4. Bayswater Power Station generates electricity from the combustion of black coal and, as part of this process, generates coal ash continuously.
- 1.5. The lighter ash component generated from the combustion of coal is known as fly ash. The fly ash is captured from the flue gases generated by the combustion of black coal and collected by the Fly Ash Plant at Bayswater Power Station. In the Fly Ash Plant, the majority of the fly ash is mixed with water to form a slurry consisting of approximately 60% fly ash and 40% water (**Fly Ash Slurry**).
- 1.6. The Fly Ash Slurry is then pumped along one of two parallel pipelines, the 'A' pipeline and the adjacent 'B' pipeline, to former mine voids which are progressively filled with fly ash as part of rehabilitation activities. The two pipelines are known as the **Ravensworth Ash Pipelines**.
- 1.7. The first section of the Ravensworth Ash Pipelines, which runs for approximately 10km, were constructed in 1997 from 8mm thick carbon steel welded piping and transports the Fly Ash Slurry from the Fly Ash Plant to the Ravensworth Mine Void No. 3 at a pressure of approximately 5.5 MPA on a 24 hour basis (**Original Section**).
- 1.8. The Original Section of the Ravensworth Ash Pipelines was extended at the 10km mark in early 2014, with an additional approximately 5km pipelines which run from the Ravensworth Mine Void No. 3 to the Ravensworth Mine Void No.5. This extended section was constructed of Schedule 80 steel piping which is 15.09mm thick, has couplings to facilitate regular inspections, and runs at lower pressure than the Original Section.
- 1.9. The Ravensworth Ash Pipelines are fitted with a number of sensors and alarms and are monitored by operators in a plant control room on a 24 hour basis.
- 1.10. On 2 September 2014, AGL Macquarie acquired Bayswater Power Station, including the Fly Ash Plant and Ravensworth Ash Pipelines, from the NSW Government.
- 1.11. The Fly Ash Plant, including the Ravensworth Ash Pipelines, has been operated and maintained by TW Power Services Pty Ltd (**TWPS**) since around 31 March 2016 under the terms of an agreement entered into between AGL Macquarie and TWPS.

- 1.12. After its acquisition of the Bayswater Power Station on 2 September 2014, AGL Macquarie became aware that there were potential integrity issues relating to the Original Section as a result of internal erosion owing to the abrasive nature of the Fly Ash Slurry. As a result, AGL Macquarie implemented a number of additional actions and procedures including as outlined at sections 1.13 to 1.19 below.
- 1.13. In 2015 AGL Macquarie used Ultrasonic Spot Thickness Testing technology and Long Range UT Guided Wave Testing technology to attempt to identify potential areas of the Original Section which presented a risk so that any such areas could be proactively repaired or replaced.
- 1.14. AGL Macquarie applied for a variation to the EPL on 12 October 2016 to include a proposed Ravensworth Ash Line Containment Program. In response to AGL Macquarie's variation application, a variation to the EPL was made on 28 February 2017. This variation application resulted in new conditions being imposed on the EPL by the EPA which relevantly required AGL Macquarie to:
  - (a) investigate and determine the most feasible option for implementing a containment system for the Ravensworth Ash Lines and provide a report to the EPA on the outcome of these investigations by 30 September 2017 in accordance with condition U3.1; and
  - (b) complete the containment system works identified in the report by 30 March 2020 in accordance with condition U3.2.
- 1.15. AGL Macquarie subsequently completed the investigation required and provided the EPA with the report required by condition U3.1 of the EPL on 28 September 2017. This report identified certain containment system works. However, following submission of this report, further investigations concluded that, in light of the length of the Original Sections and the high pressure necessary to transport the Fly Ash Slurry, containment was not feasible. In light of this, AGL Macquarie wrote to the EPA outlining an alternative proposal to replace the Original Sections of the Ravensworth Ash Pipelines.
- 1.16. AGL Macquarie subsequently identified that development consent under the *Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)* would be required in order to authorise the replacement of the Original Sections of the Ravensworth Ash Pipelines. AGL Macquarie accordingly included the replacement of the Original Sections of the Ravensworth Ash Pipelines as part of a broader State Significant Development application SSD-9697 (**Development Application**) for the Bayswater Power Station. The Development Application is currently being assessed in accordance with the EP&A Act and the Environmental Impact Statement for the Development Application was placed on public exhibition on 1 July 2020.
- 1.17. The EPA approved the replacement of the Original Sections of the Ravensworth Ash Pipelines as an alternative option to satisfy condition U3.2 of the EPL by a letter dated 18 February 2019.
- 1.18. AGL Macquarie subsequently applied for a variation of the EPL on 18 December 2019. This variation application relevantly sought to:
  - (a) amend the former condition U3.2 to clarify that the Original Sections of the Ravensworth Ash Pipelines would be replaced and reflect the expected date by which the SSD Application for the Bayswater WOAOW Project would be

determined; and

- (b) include a new condition on the EPL related to an asset environmental management review being undertaken by AGL Macquarie across Bayswater Power Station (**Asset Environmental Management Review**).
- 1.19. In response to AGL Macquarie's variation application, a variation to the EPL was made by the EPA on 6 February 2020 which relevantly:
- (a) amended condition U3.2 to require AGL Macquarie to "replace the original sections of the Ravensworth Ash Line" by 30 June 2022; and
- (b) included a new condition U7:
- formalising the Asset Environmental Management Review being undertaken by AGL Macquarie as a Pollution Reduction Study under the EPL; and
  - requiring AGL Macquarie to complete the Asset Environmental Management Review and provide a final report to the EPA by 31 December 2021.

## **2. RAVENSWORTH ASH LINE EVENT**

- 2.1. At approximately 1.05 am on 4 September 2019 a hole formed in part of the Original Section of the 'B' pipeline resulting in a release of Fly Ash Slurry (**Event**).
- 2.2. AGL Macquarie personnel became aware of the Event at approximately 9.00 am on 4 September 2019. AGL Macquarie personnel took immediate action to cease the transfer of Fly Ash Slurry via the 'B' pipeline and notified the Event to the EPA in accordance with the Pollution Incident Response Management Plan on 4 September 2019.
- 2.3. It is estimated that the Event resulted in approximately 1440.53m<sup>3</sup> of fly ash being released. Following the event AGL Macquarie carried out clean up and rehabilitation actions, in consultation with the EPA, at a total cost of approximately \$320,000.
- 2.4. Following the Event it was identified that:
- (a) the hole in the 'B' pipeline formed as a result of internal erosion;
- (b) while the TWPS operator monitoring the Ravensworth Ash Pipelines observed a declining flow trend from the time of the Event, as the pressure trend remained relatively stable, they did not consider the declining flow trend to be conclusive of a hole having formed;
- (c) a number of the alarms installed and commissioned (prior to AGL Macquarie's acquisition of the Bayswater Power Station) to monitor the transfer of Fly Ash Slurry via the Ravensworth Ash Pipelines were not configured correctly; and
- (d) one alarm which was designed to activate when there was a discrepancy between the Fly Ash Slurry pump flow transmitter and the discharge flow in the 'B' pipeline had been disabled by TWPS's operators.

## **3. EPA CONCERNS AND AGL MACQUARIE ACKNOWLEDGEMENTS**

- 3.1. The EPA considers that the Event resulted in the pollution of waters, which is an offence under section 120(1) of the POEO Act on the basis that some of the Fly Ash Slurry entered the dry bed of Bayswater Creek.

- 3.2. The EPA is also concerned that the Event constituted a breach of section 64 of the POEO Act (with respect to conditions O1.1 and O2.1 of the EPL) and section 167 of the POEO Act.
- 3.3. AGL Macquarie acknowledges the EPA's concerns as set out at 3.1 and 3.2 above and that it is required to comply with the POEO Act and the EPL. AGL Macquarie sincerely regrets the impacts caused by the Event and confirms its commitment to ensuring ongoing improvements in environmental performance to prevent any reoccurrence of the Event, undertaking further improvements at the site and supporting activities in the local area which will improve the local environment.
- 3.4. AGL Macquarie has sought to promptly and comprehensively deal with the consequences and the causes of the Event as outlined below.

#### **4. POST INCIDENT ACTION TAKEN TO PREVENT RECURRENCE**

- 4.1. AGL Macquarie prioritised and further expedited a review the Fly Ash Plant and Ravensworth Ash Pipelines as part of the ongoing Asset Environmental Management Review to prevent any re-occurrence of the Event. Key actions implemented in relation to the Ravensworth Ash Pipelines as part of the Asset Environmental Management Review included:
- (a) the installation and calibration of an upgraded leak detection alarm on the Ravensworth Ash Pipelines, including:
- an automatic shut-off function which stops Fly Ash Slurry from being fed into the Ravensworth Ash Pipelines when the leak detection alarm is activated; and
  - a function which automatically re-arms the leak detection alarm when the condition that gave rise to the alarm has been cleared; and
- (b) initiating a process to remove vegetation along the Ravensworth Ash Pipelines at least 3 times a year to provide increased visibility and facilitate early detection of any leaks (with further vegetation monitoring and removal being undertaken as required).
- 4.2. AGL Macquarie has also trialled further testing technology at a number of points on Ravensworth Ash Pipelines to identify if the available technologies are capable of identifying areas of the above ground components of the Original Section (**Relevant Sections**) which present a risk while the Development Application which will authorise the replacement of the Original Section remains pending so that any such areas can be proactively repaired or replaced. These trials confirmed that a modified version of Electromagnetic Acoustic Transducer (**EMAT**) technology developed for the project (**EMAT Testing**) is, when combined with other non-destructive testing technologies, a suitable option. Accordingly, AGL Macquarie is currently in the process of completing:
- (a) testing on the Relevant Sections of the Ravensworth Ash Pipelines using both:
- EMAT Testing along the entire length of the Relevant Sections; and
  - other suitable non-destructive testing technologies on key areas of the Relevant Sections as identified by the EMAT Testing; and
- (b) replacing or repairing any parts of the Relevant Sections of the Ravensworth Ash Pipelines which this testing identifies as requiring replacement or repair to

minimise risks pending the replacement of the Relevant Sections.

AGL Macquarie currently expects that these testing and rectification works will be completed by 31 December 2020 at an estimated cost of between \$1,000,000 to \$1,250,000.

- 4.3. AGL Macquarie has also fully co-operated with the EPA in relation to its investigation into the Event and engaged proactively with the EPA in applying for the EPL variations to drive environmental improvements as outlined at 1.14 and 1.18 above.

## 5. OFFER AND ACCEPTANCE OF UNDERTAKING

- 5.1. AGL Macquarie has offered, and the EPA has accepted, the commitments set out in clauses 5.2 to 5.10 below.

- 5.2. **Deliver benefits to the environment and community through Environmental Projects:** AGL Macquarie undertakes to make payments totalling \$500,000 (inclusive of any GST) (**Environmental Projects Amount**) towards the delivery of environmental related projects for the benefit of the local community as approved by the EPA in writing based on the criteria contained in **Appendix A**.

- 5.3. AGL Macquarie undertakes to:

- (a) identify projects which meet the criteria in Appendix A and apply to the EPA for approval of the funding of these projects, including the information required in the table to **Appendix A** within 2 months of the EPA accepting this enforceable undertaking;
- (b) make the payments towards each specific project in accordance with the payment timeframes approved by the EPA in writing;
- (c) provide notice to the EPA within 5 business days of each such payment being made;
- (d) ensure the full Environmental Projects Amount is expended on the projects approved by the EPA in writing within 2 years of the EPA accepting this enforceable undertaking; and
- (e) provide a report in writing, outlining how each of the specific milestones and deliverables within the project plan have been achieved, including supporting evidence such as photographs, reports or studies (**Project Report**), within 4 weeks of AGL Macquarie being notified of the completion of each project. AGL Macquarie is to request for the relevant information from the proponent of each project for the purposes of providing such a report to the EPA.

- 5.4. **Drive improvements in environmental performance:** In addition to the works already underway as outlined at 4.2 above, AGL Macquarie undertakes to carry out the following further activities at an estimated cost in the range of \$500,000 to \$600,000 (inclusive of any GST) to minimise the risk of a hole forming pending the replacement of the Original Section in accordance with condition U3.2 of the EPL while the Development Application remains pending:

- (a) from 30 June 2021 to 30 December 2021, conduct a second round of testing on the Relevant Sections of the Ravensworth Ash Pipelines using both:
  - EMAT Testing along the entire length of the Relevant Sections; and

- other suitable non-destructive testing technologies on key areas of the Relevant Sections as identified by the EMAT Testing,

collectively, the **Further Comprehensive Testing**;

- (b) by 30 December 2021, replace or repair any parts of the Relevant Sections of the Ravensworth Ash Pipelines which are identified by the Further Comprehensive Testing as requiring replacement or repair to minimise risks pending the replacement of the Original Section (**Further Rectification Works**);
- (c) prioritise Further Rectification Works based on the risk of failure, considering the likelihood of failure; and, the location of failure and sensitivity of the receiving environment should the risk be realised;
- (d) by 31 January 2022, provide a report (**Rectification Report**) to the EPA which:
  - summarises the results of the Further Comprehensive Testing;
  - confirms that the Further Rectification Works have been completed; and
  - confirms the amount spent in total on Further Comprehensive Testing and Further Rectification Works (**Actual Costs**)
- (e) if the Actual Costs of Further Comprehensive Testing and Further Rectification Works total less than \$600,000, then the amount that is required to be spent to reach \$600,000 is to be calculated (**Remainder Amount**);
- (f) the Remainder Amount is to be paid to either:
  - one or more further environmental projects under clause 5.2; or
  - one or more further industry specific training under clause 5.5; or
  - a combination of one or more further environmental projects or industry specific training;
- (g) if the Remainder Amount is redirected to a further environmental project, AGL Macquarie undertakes to:
  - identify a project pursuant to clause 5.3 (a) within 2 months of the report provided under clause 5.4 (d);
  - ensure that the Remainder Amount (or relevant part) is expended on further environmental projects approved by the EPA in writing within 6 months of the report provided under clause 5.4(d); and
  - otherwise comply with clause 5.3.
- (h) if the Remainder Amount is redirected to further industry specific training, AGL Macquarie undertakes to complete the training within 6 months of the report provided under clause 5.4 (d); and
- (i) AGLM must consult with the EPA and obtain the EPA's approval regarding the suitability of the further environmental project or further industry training, before the Remainder Amount is paid.

#### 5.5. **Drive improvements in environmental performance industry-wide:**

- (a) AGL Macquarie undertakes to provide a training session to members of the Australian Energy Council Environment Working Group on:

- the application of the EMAT Testing to ash pipelines;
- the processes being carried out by AGL Macquarie as part of the Asset Environmental Management Review under condition U7 of the EPL; and
- the benefits of these in ensuring ongoing improvements in environmental performance.

This training will be completed within 9 months of the EPA accepting this enforceable undertaking. The estimated value of the training is approximated \$8,000 (inclusive of any GST).

(b) AGL Macquarie undertakes to examine opportunities to share the learnings of the EMAT Testing with other industries that use long pipelines to transfer similar materials, such as fly ash, slurries or tailings. Such opportunities may include, but are not limited to, meetings or conference presentations to organisations such as the Minerals Council of Australia, NSW Minerals Council and/or Hunter Coal Environment Group.

Together, the total estimated cost of the undertakings in clauses 5.2 to 5.5 is approximately \$1,108,000 (inclusive of any GST).

5.6. **Publication of Enforceable Undertaking:** AGL Macquarie undertakes to the EPA that it will:

- issue a notice in the form of **Appendix B (the Print Media Notice)** in the each of the Newcastle Herald, the Singleton Argus, the Hunter River Times and Coal Face (an industry magazine) (noting that if any of these Publications cease to exist within this period then AGL Macquarie must issue the Media Notice in any equivalent alternative publications circulating in the same area) (**Publications**) within 60 days of the execution of this enforceable undertaking;
- place the Print Media Notice on a right-hand page within the first five pages of the Publications and at a size of no less than 9 x 12cm; and
- notify the EPA in writing of the publication of each the Print Media Notice in the Publications (and provide the EPA with a copy of each published Print Media Notice) within 60 days of the execution of this enforceable undertaking.

5.7. **Reference to Enforceable Undertaking:** Any reference made by AGL Macquarie in any public document (such as a media release or other public statement) to the payment by AGL Macquarie towards the delivery of any of the projects to be funded by the Environmental Projects Amount in accordance with clause 5.2 above will include a statement with words to the following effect:

*AGL Macquarie gave an enforceable undertaking to the Environment Protection Authority following a release of Fly Ash Slurry from a pipeline at the Bayswater Power Station in September 2019. As part of this undertaking, AGL Macquarie is required to contribute funds towards environmental projects as approved by the EPA up to a total amount of \$500,000.*

5.8. **EPA's Costs:** AGL Macquarie undertakes to pay the following costs:

- Legal Costs:** AGL Macquarie agrees to pay the EPA \$85,000 (inclusive of any GST) in satisfaction of the legal costs incurred by the EPA in investigating the Event, taking compliance action, and in the course of negotiating and finalising this enforceable undertaking.



**(b) Investigation and Monitoring Costs:**

- i. AGL Macquarie agrees to pay the EPA \$1830.64 (inclusive of any GST) in satisfaction of the investigation costs related to the Event; and
  - ii. AGL Macquarie agrees to pay the EPA \$1,000 (inclusive of any GST) in satisfaction of the compliance monitoring costs in relation to this enforceable undertaking.
- 5.9. AGL Macquarie undertakes to make the payments set out in clauses 5.8(a) and 5.8(b) within 60 days of the EPA providing a tax invoice for these amounts and to provide notice to the EPA when such payments are made.
- 5.10. **Reporting and Accountability:** AGL Macquarie will provide the following reports to the EPA in writing:
- (a) **Project Report** within 4 weeks of the completion of each project funded pursuant to clause 5.3(e) and 5.4(g);
  - (b) **Annual Progress Report:** on AGL Macquarie's progress in complying with the undertakings at clauses 5.2 to 5.9 above, within 12 months of the EPA accepting this enforceable undertaking;
  - (c) **Rectification Report** pursuant to clause 5.4 (d) by 31 January 2022; and
  - (d) **Final Report** confirming that the actions required by clauses 5.2 to 5.9 have been completed by 31 January 2022 (unless there is a Remainder Amount pursuant to clause 5.4(e), in which case the Final Report will be provided to the EPA within two weeks after the Remainder Amount has been paid or expended).

**6. FURTHER ACKNOWLEDGEMENTS**



- 6.1. AGL Macquarie acknowledges that enforceable undertakings are public and the EPA may:
- (a) issue an associated media release on execution of this enforceable undertaking referring to its terms and to the concerns of the EPA which led to its execution;
  - (b) from time to time, publicly refer to this enforceable undertaking; and
  - (c) place a copy of the executed undertaking on the public register it maintains under the POEO Act.
- 6.2. AGL Macquarie acknowledges that the EPA's acceptance of this enforceable undertaking does not affect its power to investigate a contravention arising from future conduct or to pursue criminal prosecution or civil remedies or use other regulatory powers under the relevant environmental legislation for that future conduct.
- 6.3. AGL Macquarie acknowledges that this enforceable undertaking does not affect the rights or remedies available to any other persons or entity nor does it affect any other statutory obligations under the POEO Act.
- 6.4. AGL Macquarie acknowledges that any communication made by the EPA regarding the projects to be funded by the Environmental Projects Amount in accordance with

clause 5.2 or Remainder Amount above will clearly link the project to the enforceable undertaking and the fact that it was entered into as a result of the Event.


- 6.5. AGL Macquarie declares that this enforceable undertaking does not include any expenditure commitments which existed or were budgeted for prior to the agreement.
- 6.6. AGL Macquarie acknowledges that this enforceable undertaking has no operative force until formally accepted by the Chief Executive Officer of the EPA.
- 6.7. AGL Macquarie acknowledges this enforceable undertaking may only be varied with the EPA's agreement and in accordance with the POEO Act.
- 6.8. AGL Macquarie acknowledges that this enforceable undertaking, as varied from time to time, will remain in force until completed or withdrawn in accordance with the POEO Act.
- 6.9. AGL Macquarie acknowledges that the EPA will take into account this enforceable undertaking in regulatory matters under the POEO Act.

Executed on 31 August 2020

**For and on behalf of AGL MACQUARIE PTY LIMITED**

|  |   |
|--|---|
| <br>Signature of director | <br>Signature of director/company secretary |
| JOHN FITZGERALD<br>Name of director  | MELINDA HUNTER<br>Name of director/company secretary  |
| <br>   | <br>  |

**Accepted by the ENVIRONMENT PROTECTION AUTHORITY pursuant to section 253A of the *Protection of the Environment Operations Act 1997 (NSW)* by its duly authorised delegate:**

  
.....  
**Tracy Mackey**  
**Chief Executive Officer**  
**EPA**

DATE: ●

## Appendix A – Project Requirements

- A.1. The Projects will be aimed at delivering an environmental benefit to the local community in the Singleton Shire Council, the Muswellbrook Shire Council, or alternatively in the broader Hunter Region.
- A.2. The Projects must be aimed at achieving an improvement in environmental outcomes and not already be fully funded.
- A.3. AGL Macquarie and its related bodies corporate must not have any commitment to carry out or fund the Projects outside of this Enforceable Undertaking.
- A.4. The Projects will generally include:
  - (a) a project outline and terms of reference where relevant;
  - (b) costing information;
  - (c) a project plan with specific milestones; and
  - (d) a clear pathway for obtaining relevant planning approvals (if required).
- A.5. Each Project is to be offered to the EPA using the following proposal template:

|   |  |
|---|--|
| <b>Project Name</b>   |  |
| <b>Proponent</b>  |  |
| <b>Organisation overview</b>  |  |
| <b>Location</b>   |  |
| <b>Background</b>   |  |
| <b>Purpose and community benefit</b>                                    |  |
| <b>Overview of Project including key actions and timing of delivery</b> |  |
| <b>Total cost of Project</b>  |  |
| <b>Amount of AGL Macquarie Contribution</b>                             |  |
| <b>Timing of AGL Macquarie Contribution</b>                             |  |
| <b>Planning approval requirements</b>                                   |  |
| <b>Project contact</b>  |  |

## Appendix B - Print Media Notice



**AGL Macquarie Pty Limited undertakes to fund environmental projects following the release of fly ash from a pipeline at the Bayswater Power Station**

AGL Macquarie Pty Limited (**AGL Macquarie**) has entered into an enforceable undertaking with the Environment Protection Authority following the release of fly ash from a pipeline (**Event**) at the Bayswater Power Station, in breach of the *Protection of the Environment Operations Act 1997* (NSW).

The enforceable undertaking requires AGL Macquarie to pay \$500,000 towards environmental projects of benefit to the local community as approved by the EPA.

AGL Macquarie has also committed to implementing other measures to ensure that the Event does not reoccur. These include further testing on the pipeline using suitable technology and carrying out any rectification works required (pending the replacement of the whole of the pipeline once the required planning approvals are obtained in accordance with existing environment protection licence conditions) and providing industry training.

AGL Macquarie has published this notice in accordance with the enforceable undertaking.