

## Emily Murray

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**From:** Nicholas Hon  
**Sent:** Monday, 14 September 2020 4:22 PM  
**To:** Emily Murray  
**Cc:** Doris Yau  
**Subject:** RE: Newcastle Power Station - updated PHA and PHA Addendum for Amendment Report

Hi Emily,

I refer to the following published documents in relation to the proposed AGL Newcastle Gas-fired Power Station (SSI 9837):

- Newcastle Power Station Project, Executive Summary (39 pages, dated November 2019);
- [EIS] Newcastle Power Station Project, Environmental Impact Statement (dated 11 November 2019, prepared by Aurecon);
- [PHA 1 – EIS Appendix S] Preliminary Hazard Analysis, AGL Newcastle Power Station, Tomago NSW (revision 2, dated 29 May 2019, prepared by Aurecon);
- [FSS – EIS Appendix T] Newcastle Power Station, Fire Safety Study, AGL Energy Limited (revision B, dated 6 September 2019, prepared by Aurecon);
- [RTS] Newcastle Power Station Project, Environmental Impact Statement Submissions Report (76 pages, dated April 2020);
- [PHA 2 – RTS Appendix F] Preliminary Hazard Analysis, AGL Newcastle Power Station Project, Tomago NSW (revision 3, dated 30 March 2020, prepared by Aurecon);
- [AR] Newcastle Power Station Project, Environmental Impact Statement, Amendment Report (69 pages, dated August 2020);
- [PHA 3 – AR Appendix E] Preliminary Hazard Analysis, AGL Newcastle Power Station Project, Tomago NSW (revision 6, dated 13 August 2020, prepared by Aurecon); and
- [PHA add. – AR Appendix F] Addendum to the Preliminary Hazard Analysis for the AGL Newcastle Power Station, Tomago NSW – East Laydown Area at the NGSF (document number 74-B558, revision 0, dated 10 August 2020, prepared by Planager).

I also refer to the following documents prepared by Aurecon prior to the Applicant's discussions with the Hazards Team of 20 February 2020 and 11 June 2020, as part of addressing our queries which are replicated in the Department's letters of 20 December 2019 and 28 May 2020:

- AGL- DPIE risk team meeting - Newcastle Power Station Project (SSI-9837) (e-mail dated 12 February 2020); and
- Responses to Attachment 1: Newcastle Power Station (SSI-9837) (7 pages, dated 5 June 2020).

In reviewing the above documents, we consider our queries to have been adequately addressed and incorporated within [PHA 3 – AR Appendix E] and [PHA add. – AR Appendix F]. Therefore, we consider these documents to constitute the finalised Preliminary Hazard Analysis (PHA) for SSI 9837 and provide our advice on this basis. The PHA generally aligns with the AR.

### Project description

The SSI includes the following components:

- a dual-fuel power station capable of operating using natural gas and/or diesel;
- a high-pressure gas pipeline connection from the existing Jemena Gas Network for supply; and
- a high-pressure gas storage system comprising of up to 5.5 km DN 1050 underground pipeline, located in between the power station and the existing AGL Newcastle Gas Storage Facility (NGSF).

It should be noted that gas is not supplied to the SSI directly from the existing AGL NGSF but through the existing JGN high-pressure gas pipeline only, as described in PHA Appendix 3. As such, a **limit of consent** should be applied on this basis.

It is understood that SafeWork NSW considers the SSI not to be a major hazard facility under the *Work Health and Safety Regulation 2017* in understanding that oversight of the high-pressure gas storage system will be covered under the *Pipelines Act 1967*. A **limit of consent** should also be applied on this basis.

#### Findings from the Preliminary Hazard Analysis (PHA)

The PHA is submitted as part of the SSI application, as required under the Hazards and Risk SEARs. In reviewing the PHA, it is considered that the PHA has been prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'* (HIPAP 6) and adopted a Level 3 Quantitative Risk Analysis in-line with the Department's *Multi-level Risk Assessment*.

The PHA appropriately identified the fire and explosion scenarios which may arise from incidents involving components within the power station and those associated with material releases from high-pressure gas pipelines. However, the PHA is based only on conceptual design and not completed preliminary design that is typically expected from prior applications. In view of this gap of expected design information, the Hazards Team queried the Applicant extensively on the technical approach and assumptions adopted in the PHA to analyse the risks from the identified scenarios. In responding to these queries, the Applicant revised the assumptions to ensure that an appropriate level of conservatism has been applied in the PHA, such as not accounting risk reduction benefits from safety measures. The Department considers these revisions to be acceptable, provided that the Applicant submits a **Final Hazard Analysis** for approval of the Secretary before construction, verifying that the final design of the SSI does not exceed the risks described in the PHA.

Although not clearly reported in the PHA, it is understood from the EIS and RTS that the Applicant has consulted and will continue to consult with the relevant agencies (Newcastle Airport and RAAF Base Williamstown) in relation to plumes from the power station. As such, recommended conditions from these agencies should be included in the consent.

#### Compliance with the Department's Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning' (HIPAP 4)

The land uses surrounding the SSI are primarily industrial with itinerant accommodation located approximately 600 m south-west from the closest SSI boundary. The PHA conservatively estimated that the individual fatality risk from the SSI to industrial land uses does not exceed the HIPAP 4 criteria of 50 per million chances per year (pmpp). The PHA also conservatively estimated that the individual fatality risk from the SSI to the itinerant accommodation does not exceed the HIPAP 4 criteria for residential land uses of 1 pmpp.

Although not clearly reported from the PHA, the Department deduced from the risk results in PHA Sections 8 and 9 that the final design of the SSI is likely to comply with the injury and accident propagation criteria specified in HIPAP 4. As such, the Department considers the SSI to comply with HIPAP 4, subject to the **Final Hazard Analysis** verifying that the final design of the SSI does not exceed the individual fatality, injury and accident propagation risk criteria specified in HIPAP 4.

#### Hazards-related conditions of consent

In addition to applying the limits of consent and requiring the submission of a Final Hazard Analysis based on the final design of the SSI as explained above, we also recommend including the following hazards-related conditions in the consent. These conditions, being consistent with the Department's HIPAP 12, are to ensure that the final design of the SSI will incorporate the recommendations arising from hazards studies, and that the SSI will be managed in a safe manner throughout its life.

### **LIMIT OF CONSENT**

1. The Applicant must ensure that gas or material flows associated with the project and its components are in accordance with the process flow diagram in Appendix 3 of the *Preliminary Hazard Analysis* (revision 6, dated 13 August 2020) without any direct gas or material flows between the project and the existing AGL Newcastle Gas Storage Facility (MP 10\_0133).
2. The Applicant must not commission or operate any high-pressure gas pipeline capable of supplying the power station, including the 5.5 km DN 1050 gas storage system, without satisfying all requirements under the *Pipelines Act 1967*.

## HAZARDS AND RISK

### Pre-construction

3. At least one month prior to the commencement of construction of the project (except for construction of those preliminary works that are outside the scope of the hazard studies) or within such further period as the Secretary may agree, the Applicant must prepare and submit for the approval of the Secretary the studies set out under subsections (a) to (c) (the pre-construction studies). Construction other than of preliminary works, must not commence until approval has been given by the Secretary and, with respect to the Fire Safety Study, approval has also been given by Fire and Rescue NSW.

(a) FIRE SAFETY STUDY

A Fire Safety Study based on the final detailed design of the project. This study must cover the relevant aspects of the Department's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study'* and the New South Wales Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. The study must also be submitted for the approval of Fire and Rescue NSW.

(b) HAZARD AND OPERABILITY STUDY

A Hazard and Operability Study based on the final detailed design of the project, chaired by a qualified person independent of the development, approved by the Secretary prior to the commencement of the study. The study must be carried out in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'*. The study report must be accompanied by a program for the implementation of all recommendations made in the report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented. The scope of the study must include and not be limited to:

- components and processes associated with the power station, including the storage, handling and use of diesel fuel;
- the supply tie-in from the existing Jemena Gas Network high-pressure gas pipeline to the power station;
- the 5.5 km DN 1050 high-pressure gas storage system; and
- outcomes, actions and recommendations from high-pressure gas pipeline Safety Management Studies required under *Australian Standard 2885 Pipelines – Gas and liquid petroleum* (AS 2885)

(c) FINAL HAZARD ANALYSIS

A Final Hazard Analysis based on the final detailed design of the project, prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The scope of the study must include and not be limited to:

- verifying that the final detailed design of the project can comply with conditions 1 and 2;
- specifying all design variations between the final detailed design and the conceptual design described in the EIS, RTS, AR and PHA;
- verifying that the risks from the project, based on the final detailed design and incorporating final safeguards, complies with the individual fatality, injury and accident propagation risk criteria specified in the Department's *Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning'* and do not exceed the risks described in the *Preliminary Hazard Analysis* (revision 6, dated 13 August 2020).

### **Pre-commissioning**

4. The Applicant must develop and implement the plans and systems set out under subsections (a) and (b) below. No later than two months prior to the commencement of commissioning of the development or within such further period as the Secretary may agree, the Applicant must submit for the approval of the Secretary documentation describing those plans and systems. Commissioning must not commence until approval has been given by the Secretary.

(a) EMERGENCY PLAN

A comprehensive Emergency Plan and detailed emergency procedures for the development. The Emergency Plan must include consideration of the safety of all people outside of the development who may be at risk from the development. The plan must be prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'*.

(b) SAFETY MANAGEMENT SYSTEM

A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The document must clearly specify all safety related procedures, responsibilities and policies along with details of mechanisms for ensuring adherence to the procedures. Records must be kept on-site and must be available for inspection by Secretary upon request. The Safety Management System must be developed in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'*. The Safety Management System must also include Safety and Operating Plans required under AS 2885.

### **Pre-startup**

5. One month prior to the commencement of operation of the development, the Applicant must submit to the Secretary, a Pre-Startup Compliance Report detailing compliance with conditions 3 and 4, including:
- (a) dates of study/plan/system submission, approval, commencement of construction and commissioning;
  - (b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
  - (c) responses to any requirement imposed by the Secretary under condition 8.

### **Post-startup**

6. Three months after the commencement of operation of the development, the Applicant must submit to the Secretary, a Post-Startup Compliance Report verifying that:
- (a) the Emergency Plan required under condition 4(a) is effectively in place and that at least one emergency exercise has been conducted; and
  - (b) the Safety Management System required under condition 4(b) has been fully implemented and that records required by the system are being kept.

### **Ongoing**

7. HAZARD AUDIT

Twelve months after the commencement of operations of the development and every three years thereafter or at such intervals as the Secretary may agree, the Applicant must carry out a comprehensive Hazard Audit of the development and within one month of each audit submit a report to the satisfaction of the Secretary for approval. The audits must be carried out at the Applicant's expense by a qualified person or team, independent of the development and approved by the Secretary prior to commencement of the audit. Hazard Audits must be carried out in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit'*. The audit must include a review of the site Safety Management System and a review of all entries made in the incident register since the previous audit. The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.

8. FURTHER REQUIREMENTS

The Applicant must comply with all reasonable requirements of the Secretary in respect of the implementation of any measures arising from the reports submitted in respect of conditions 3 to 7 inclusive, within such time as the Secretary may agree.

9. The Applicant must store and handle all chemicals, fuels and oils in accordance with:
- (a) the requirements of all relevant Australian Standards; and
  - (b) the NSW EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook* if the chemicals are liquids.

In the event of an inconsistency between the requirements in (a) and (b) above, the most stringent requirement shall prevail to the extent of the inconsistency.

Please contact me if there are any queries on the above or the Applicant request any amendment to the above conditions.

Thanks.

Regards,

**Nicholas Hon**

Technical Specialist (Hazards)

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**From:** Emily Murray <[Emily.Murray@planning.nsw.gov.au](mailto:Emily.Murray@planning.nsw.gov.au)>

**Sent:** Thursday, 27 August 2020 2:35 PM

**To:** Nicholas Hon <[Nicholas.Hon@planning.nsw.gov.au](mailto:Nicholas.Hon@planning.nsw.gov.au)>

**Cc:** Doris Yau <[doris.yau@planning.nsw.gov.au](mailto:doris.yau@planning.nsw.gov.au)>

**Subject:** RE: Newcastle Power Station - updated PHA and PHA Addendum for Amendment Report

Hi Nicholas and Doris,

AGL have resubmitted the Amendment Report and associated PHA and PHA Addendum. They are available on the major projects website:

<https://www.planningportal.nsw.gov.au/major-projects/project/9951>

Could you please provide comments on the Amendment Report and PHA's and any advice on recommended conditions. We have requested agency advice by 9 September through the portal, however, I understand as below that the detailed review requires two weeks.

Kind regards,

**Emily Murray**

Environmental Assessment Officer

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**From:** Nicholas Hon <[Nicholas.Hon@planning.nsw.gov.au](mailto:Nicholas.Hon@planning.nsw.gov.au)>

**Sent:** Thursday, 20 August 2020 11:09 AM

**To:** Emily Murray <[Emily.Murray@planning.nsw.gov.au](mailto:Emily.Murray@planning.nsw.gov.au)>