



3 September 2010

Minister for Planning  
C/ Mr Daniel Keary  
Director, Major Infrastructure Assessments  
NSW Department of Planning  
GPO Box 39  
Sydney NSW 2001

Dear Minister

**Application for modification of Development Consent for Uranquinty Power Station  
(DA-31-2-2004-1)**

I am writing to seek a modification to the Development Consent ("Consent") for Uranquinty Power Station ("UPS"), located in Uranquinty, NSW, and operated by Origin Energy Uranquinty Power Pty Ltd ("OEUP").

**1. Introduction**

This application seeks to modify the Consent to allow operation of UPS outside normal operating conditions, particularly to facilitate the carrying out of short term noise tests.

As part of addressing noise emissions from UPS, Origin is engaged with the original equipment supplier to determine the feasibility and means of reducing noise emissions at the station. This process requires short term noise tests to evaluate noise mitigation measures made in the previous 12 months, consider other noise mitigation measures, and to provide information on the performance of the plant in relation to the UPS equipment supplier's contractual obligations.

To this end the Department of Planning ("DoP"), the Department of Environment Climate Change and Water ("DECCW"), and Origin have considered how short term noise tests could be undertaken. At a meeting between DoP, DECCW, Sonus (Origin engaged acoustic engineers), and Origin on the 19<sup>th</sup> August this year the appropriate regulatory mechanisms were discussed, and it was agreed that an application to modify the Consent should be submitted by Origin. The proposed modification would be to the effect that operational noise conditions in the Consent would not apply outside normal operating conditions, as is the case in more recent Development Consents for similar infrastructure, as well as for short term noise testing.

An application will be made to DECCW to vary UPS Environment Protection Licence 12490 ("Licence") to the same effect as this proposed modification.

Supporting the proposed changes in the Consent and Licence, a Short Term Noise Test Procedure ("the Procedure") would be submitted to the DoP and the DECCW, and this Procedure would be identified in the UPS Operational Environmental Management Plan (OEMP). The Procedure would specify a period during which short term noise tests would be conducted, limitations on the number and frequency of tests within the period, and mitigation measures including community consultation to be undertaken during the tests.

Before a period of testing commenced, approval of a Procedure would be sought by Origin from the DoP and the DECCW.

The process of having the Departments approve a Procedure was also envisaged to be an effective regulatory process to enable further periods for noise tests, should they be necessary over the coming years, while not requiring subsequent amendments to the Consent and Licence.

The completed "Application to modify a development consent" form and the proposed Procedure accompany this letter.

An amendment to the OEMP providing for a Procedure will be submitted to DoP separately to this application.

## **2. Description of development**

The UPS is a gas fired power station operated to meet the State's need for power at various times. The plant output is generated by four nominally 160MW open cycle turbines. Water is supplied from the town water reticulation system and treated onsite. The basic components or structures involved in the facility are:

- gas pipelines and gas fuel filter and reduction station;
- gas turbine buildings, transformers and exhaust stacks;
- water storage and demineralisation plant (reverse osmosis);
- power control centre/building;
- emergency diesel generators and minor distillate tanks; and
- fire control facilities.

None of these aspects of the UPS will change if the proposed modification is approved.

## **3. Proposed wording**

It is proposed to amend condition 3.11 of the Consent to incorporate additional text (showing in different colouring) which does not require noise contributions from the development to be met when UPS operation occurs during non-normal conditions and during noise tests. The text below has been drafted using the terms of the Marulan Gas Fired Power Station Project Approval and additional text identifying noise tests to ensure there is no inconsistency with the associated application expected to be made to vary the Licence.

### *1. Amend Condition 3.11 to read as follows:*

<sup>9</sup>The Applicant shall design, construct, operate and maintain the development to ensure that the noise contributions from the development to the background acoustic environment do not exceed the maximum allowable noise contributions specified in Table 2, at those locations and during those periods indicated. The maximum allowable noise contributions apply under wind speeds up to 3 ms<sup>-1</sup> (measured at 10 metres above ground level), or under temperature inversion conditions of up to 3°C/100 metres and under wind speeds up to 2 ms<sup>-1</sup> (measured at 10 metres above ground level). This condition only applies to the project operating under normal operating conditions and does not apply during start-up, shut-down, emergency situations, and for the purposes of conducting noise or other tests (including to assist in considering mitigation of emissions from the development).

The associated Procedure would be given authority under condition 6.6 c) of the Consent, which requires a Noise Management Plan in the OEMP, and consequently additional wording amendments are not proposed to enable that Procedure.

## **4. Justification**

Facilitating Environmental Performance Improvement

As part of addressing noise emissions from UPS, Origin is engaged with the original equipment supplier to determine the feasibility and means of reducing noise emissions at the station. This process requires short term noise tests to evaluate noise reduction measures made in the previous 12 months and other noise mitigation measures, consider other noise mitigation measures, and to provide information on the performance of the plant in relation to the UPS equipment supplier's contractual obligations.

This is the principal justification for the proposed modification of condition 3.11.

#### Short Term Noise Test Procedure

It is expected that during a noise test outside of normal operating conditions the noise would be audible at residences surrounding UPS. Where this is anticipated it is appropriate to put in place mitigation measures. Consequently, the Procedure developed and accompanying this application, outlines steps that would be taken during a period of noise testing outside normal operating conditions.

It is proposed that a period of short term noise testing would not commence until approval of the relevant Procedure for that testing has been obtained from both DoP and DECCW.

The Procedure outlines steps to ensure the reasonable mitigation of noise impacts, and includes the following aspects:

- a defined period when the testing might occur;
- the frequency of testing within the defined test period;
- a measurement technique;
- a schedule for each test;
- an outline of the community consultation and actions proposed; and
- extent of the impact expected

#### Noise Levels at Residences

As identified above it is expected that during a noise test noise emissions may be audible at some residences. As the proposed testing would occur during night and sleeping hours, noise levels with respect to sleep disturbance are relevant. The following information is provided in the accompanying Procedure, and included here as part of the justification for the proposed modification.

The World Health Organisation ("WHO") has developed guidelines for community noise in specific environments and suggests that the equivalent noise level (Leq) inside bedrooms at night should be limited to 30 dB(A) and the maximum noise level (Lmax) should be limited to 45 dB(A).

Based on bedroom windows being partially open, the WHO suggests that to achieve the internal levels described above, the equivalent (Leq) and maximum (Lmax) noise levels outside a bedroom window should be limited to 45 dB(A) and 60 dB(A) respectively.

It is anticipated that the combined noise from the UPS and associated activity will exceed the WHO Guidelines for sleep disturbance at the Pine Grove residence and possibly the Wardrobe residence but the criteria are expected to be achieved at all other residences. It is noted that at each of these residences where the criteria may not be achieved, there is a Negotiated Agreement in place within the scope of current condition 3.12D of the Consent.

#### Regulatory process

The process proposed, including modification of the Consent and variation of the Licence, will allow for short term noise tests over a specified period, in accordance with an agreed Procedure. A period of testing would only be entered into after approval of the relevant

Procedure by DoP as provided for under the OEMP, and by DECCW under a specific condition in the Licence.

The approval step provides for regulatory oversight and ensures noise tests would only occur within the Departments' expectations and not during circumstances which have not been properly considered.

#### Consistency with other Development Consents

The proposed modification in condition 3.11 is considered reasonable, as it would include in the UPS Consent the current approach to regulating operation outside normal operating conditions, which is adopted in Development Consents for other similar infrastructure. This approach is the inclusion of a condition that specifies operational noise limits are only applicable during normal operation.

The Marulan Gas Fired Development Consent has been reviewed, as advised by DoP, and the wording proposed here is similar to the wording in that consent. This will provide for lawful operation of UPS during transient events and emergency situations where noise could not reasonably be expected to be controlled.

The proposal for authorisation of noise testing is also consistent with that approach.

In these circumstances, with consideration of the long term environmental performance improvements facilitated by the short term noise tests discussed, the mitigation measures proposed, community consultation actions, and given that this condition will reflect more commonly accepted regulatory principles, this modification will have minimal environmental impact and is considered justifiable.

If you have any queries in this matter, please contact myself or Mr Ian Smith on 0427 005 357.

Yours sincerely



Peter Israel

General Manager Generation

#### **Attached:**

*DOP - Application to Modify a Development Consent form*

*DOP - Political Donations Disclosure form*

*Sonus - Short Term Noise Measurement Procedure - September To December 2010*

# Application to modify a development consent

Date lodged: 6 / 9 / 10



NSW GOVERNMENT  
Department of Planning

DA modification no. DA-31-2-2004-1  
(Office use only) MOD 8

## 1. Before you lodge

This form is to be used for applications to modify Part 4 development consents under section 96 or 96AA of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This form is also to be used for Part 4 development consents that are to be modified under section 75W of the Act.

### Disclosure statement

Persons lodging modification applications are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years. For more details, including a disclosure form, go to [www.planning.nsw.gov.au/donations](http://www.planning.nsw.gov.au/donations).

### Lodgement

Anyone wishing to lodge an application is recommended to call the Department of Planning to discuss their proposal and modification application requirements prior to lodging their application. You can lodge your completed form, together with attachments and fees at the relevant Department of Planning office listed below. Please lodge Part 4 modification applications with the Department of Planning head office or, for modification applications that are within the Kosciuszko ski resorts area, the Department's Alpine Resorts team.

NSW Department of Planning  
Head Office  
Ground Floor, 23-33 Bridge Street, Sydney NSW 2000  
GPO Box 39 Sydney NSW 2001  
Phone: 1300 305 695 Fax: (02) 9228 6555  
Email: [information@planning.nsw.gov.au](mailto:information@planning.nsw.gov.au)

NSW Department of Planning  
Alpine Resorts Team  
Shop 5A, Snowy River Avenue  
PO Box 36, Jindabyne NSW 2627  
Phone: (02) 6456 1733 Fax: (02) 6456 1736  
Email: [alpineresorts@planning.nsw.gov.au](mailto:alpineresorts@planning.nsw.gov.au)

To minimise delay in receiving a decision about your application, please ensure you submit all relevant information to the Department. When your application has been assessed, you will receive a notice of determination.

## 2. Applicant and contact details

|                                                                                                                                                            |                       |                |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|--|
| Company/organisation/agency                                                                                                                                |                       | ABN            |  |
| Origin Energy Uranquinty Power Limited                                                                                                                     |                       | 93 008 289 398 |  |
| <input checked="" type="checkbox"/> Mr <input type="checkbox"/> Ms <input type="checkbox"/> Mrs <input type="checkbox"/> Dr <input type="checkbox"/> Other |                       |                |  |
| First name                                                                                                                                                 |                       | Family name    |  |
| Matthew                                                                                                                                                    |                       | Hallam         |  |
| STREET ADDRESS                                                                                                                                             |                       |                |  |
| Unit/street no.                                                                                                                                            | Street name           |                |  |
| 280                                                                                                                                                        | Uranquinty Cross Road |                |  |
| Suburb or town                                                                                                                                             | State                 | Postcode       |  |
| Uranquinty                                                                                                                                                 | NSW                   | 2652           |  |
| POSTAL ADDRESS (or mark 'as above')                                                                                                                        |                       |                |  |
| GPO Box 46                                                                                                                                                 |                       |                |  |
| Suburb or town                                                                                                                                             | State                 | Postcode       |  |
| Uranquinty                                                                                                                                                 | NSW                   | 2652           |  |
| Daytime telephone                                                                                                                                          | Fax                   | Mobile         |  |
| 02 6927 0101                                                                                                                                               | 02 6927 0150          | 0417 600 237   |  |
| Email                                                                                                                                                      |                       |                |  |
| <a href="mailto:matthew.hallam@originenergy.com.au">matthew.hallam@originenergy.com.au</a>                                                                 |                       |                |  |

### 3. Property description

Unit/street no. (or lot no. for Kosciuszko ski resorts)

280

Street or property name

Uranquinty Cross Road

Suburb, town or locality

Uranquinty

Postcode

2652

Local government area

Wagga Wagga

Lot/DP or Lot/Section/DP or Lot/Strata no.

Please ensure that you put a slash ( / ) between lot, section, DP and strata numbers. If you have more than one piece of land, you will need to separate them with a comma e.g. 123/579, 162/2.

Lot 1 DP 1098910

Note: You can find the lot, section, DP or strata number on a map of the land or on the title documents for the land, if title was provided after 30 October 1983. If you have documents older than this, you will need to contact the NSW Department of Lands for updated details. If the subject land is located within the Kosciuszko ski resorts area, DP and strata numbers do not apply.

### 4. Details of the original development consent

Briefly describe your approved development in the space below. If the development has been modified previously you must list all previous modifications and the relevant determination date(s).

10/06/2005 - 600MW Gas Fired Power Station - DA-31-2-2004-i

8/08/2006 - DA Modification - Stage 2 of development combined with stage 1.

6/07/2007 - DA Modification - Change to operational noise limits for the development.

18/12/2008 - DA Modification - Administrative corrections to wording of DA.

14/07/2009 - DA Modification - Approval for the building of a storage shed on-site.

11/12/2009 - DA Modification - Recognition of Negotiated Agreements and definition of residential dwellings.

13/08/2009 - DA Modification - Installation of weather mast

27/08/2010 - DA Modification - Recognition of Negotiated Agreements and definition of residential dwellings

What was the original development application no.?

DA-31-2-2004-i

What was the date consent was granted?

10/6/2005

What was the original application fee?

\$2656.50

### 5. Type of modification

Estimated cost of the development

Original application fee

Total fees lodged

\$500

**11. Political donation disclosure statement**

Persons lodging modification applications are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years. Disclosure statements are to be submitted with your application.

Have you attached a disclosure statement to this application?

Yes ☒No ☐

Note: For more details about political donation disclosure requirements, including a disclosure form, go to [www.planning.nsw.gov.au/donations](http://www.planning.nsw.gov.au/donations).

**12. Owner's consent**

The owner(s) of the land to be developed must sign the application. If you are not the owner of the land, you must have all the owners sign the application. If the land is Crown land, an authorised officer of the NSW Department of Lands must sign the application. **An original signature must be provided.**

As the owner(s) of the above property, I/we consent to this application:

Signature

N/A - applicant is owner

Signature

Name

Name

Date

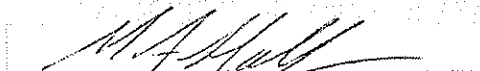
Date

Note: For applications within the Kosciuszko ski resorts area, the approval of the lessee rather than the owner is required.

**13. Applicant's signature**

The applicant, or the applicant's agent, must sign the application. Only an original signature will be accepted (photocopies or faxed copies will not be accepted).

Signature



In what capacity are you signing if you are not the applicant

Plant Manager

Date

2/9/2010

Name, if you are not the applicant

Matthew Hallam

**14. Privacy policy**

The information you provide in this application will enable the Department, and any relevant state agency, to assess your application under the *Environmental Planning and Assessment Act 1979* and other applicable state legislation. If the information is not provided, your application may not be accepted.

If your application is for designated development or advertised development, it will be made available for public inspection and copying during a submission period. Written notification of the application will also be provided to the neighbourhood. You have the right to access and have corrected any information provided in your application. Please ensure that the information is accurate and advise the Department of any changes.



An application under section 96 of the EP&A Act is an application to modify a development consent. Modifications to a development consent can also be made under section 75W of the EP&A Act, or section 96AA for court granted consents.

There are five types of modification applications. Please tick the type of modification application that is being sought:

- ☐ Section 96(1) involving minor error, misdescription or miscalculation.
- ☐ Section 96(1A) involving minimal environmental impact, where the development as originally approved remains substantially the same.
- ☐ Section 96(2) other modification, where the development as originally approved remains substantially the same.
- ☐ Section 96AA modification of consent granted by the Land and Environment Court, where the development as originally approved remains substantially the same.
- ☒ Section 75W modification, involving use of Part 3A processes to modify the Part 4 consent.

Note: If the proposed modification will lead to the consented development being not 'substantially the same' (except in the case of a proposed modification under section 75W) then you will need to submit a new development application.

## 6. Extent of modification

Will the modified development be substantially the same as the development that was originally approved?

No ☐ Please submit a new development application.

Yes ☒ Please provide evidence that the development will remain substantially the same. (If you need to attach additional pages, please list below the material attached).

This application proposes to modify condition 3.11 to the effect that operational noise conditions do not apply during non-normal operating conditions or for the purpose of conducting short term testing. It does not propose any physical works. Therefore the Applicant believes the development as modified will be substantially the same development.

Please refer to the accompanying letter.

Note: Question 6 does not apply to proposed modifications under section 75W.

## 7. Description of modification

- In the case of a section 96(1) application, indicate the nature of the minor error, misdescription or miscalculation in the space below.
- In the case of a section 96(1A), section 96(2) or section 96AA application describe the impact of the modification in the space below. A statement of environmental effects will need to accompany the application, which includes an assessment of the development as proposed to be modified in accordance with section 79C(1) of the EP&A Act. Provisions of the *Heritage Act 1977* may also apply for works to a heritage item or works adjoining a heritage item.
- In the case of a section 75W application under clause 8J(8) of the Environmental Planning and Assessment Regulation 2000, a development consent in force immediately before the commencement of Part 3A of the Act may be modified under section 75W as if the consent were an approval under that Part. However, approval from the Minister is required to lodge a section 75W application. **Applicants should contact the Department first if they are considering applying for a modification under section 75W.**

Regardless of the type of modification, please state below the specific conditions of consent to be modified, deleted or additional conditions request, and details of any other changes being sought.

The application proposes an amendment to condition 3.11 of the Development Consent.

Please refer to the accompanying letter for detail and justification.

Note: If your proposal is within Kosciuszko ski resorts area, please attach a copy of the Interim Lease Variation Approval received from the Department of Environment and Climate Change to your application.

## 8. General terms of approval from State agencies

If the original development application was classified as integrated development and required approval from one or more State agencies, list them in the space below and their respective general terms of approval. Depending on the type of modification, it may be necessary to refer the modification application to the approval body.

Department of Environment, Climate Change and Water -  
Environment Protection Licence 12490.

## 9. Number of jobs to be created

Please indicate the number of jobs the proposed development will create. This should be expressed as a proportion of full time jobs over a full year, (e.g. a person employed full time for 6 months would equal 0.5 of a full time equivalent job; six contractors working on and off over 2 weeks equate to 2 people working full time for 2 weeks, which equals approximately 0.08 of an FTE job).

Construction jobs (full time equivalent) 0

Operational jobs (full time equivalent) 0

## 10. Application fee

Part 15 of the Environmental Planning and Assessment Regulation 2000 sets out how to calculate the fees for an application for modification of a development consent. If your development needs to be advertised to the public you may also need to include an advertising fee.

Note: Advertising fees attract GST, all other fees do not.

Please contact the Department in order to calculate the fee for your modification application.

Sonus Pty Ltd  
17 Ruthven Avenue  
ADELAIDE SA 5000  
Phone: (08) 8231 2100  
Facsimile: (08) 8361 7879  
[www.sonus.com.au](http://www.sonus.com.au)  
ABN: 67 882 843 130



## **URANQUINTY POWER STATION**

### **OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN**

### **DRAFT SHORT TERM NOISE MEASUREMENT PROCEDURE**

**SEPTEMBER TO DECEMBER 2010**



## GLOSSARY

|                     |                                                                                                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A weighting         | Frequency adjustment representing the response of the human ear. The frequency weighting emphasises the noise in the mid frequency range where the human ear is best at hearing. |
| Ambient noise level | Noise level in the absence of the noise from the power station.                                                                                                                  |
| dB(A)               | A weighted noise level measured in decibels.                                                                                                                                     |
| $L_{Aeq}$           | The A weighted equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.                      |
| $L_{max}$           | The maximum instantaneous noise level measured over the measurement period                                                                                                       |



## **1 INTRODUCTION**

The Uranquinty Power Station<sup>[1]</sup> (UPS) is an open cycle gas-fired power station located at Uranquinty Cross Road, and is operated to meet the grid demand for power at various times. It has four gas turbines for electricity generation. The UPS is licensed by the Department of Environment, Climate Change and Water<sup>[2]</sup> (DECCW) for Electricity Generation at a scale of >1000-4000 GWh per annum.

The Operational Environmental Management Plan (OEMP) for the UPS proposes annual noise monitoring for the purpose of determining the influence of noise from the normal operation of the UPS on the acoustic environment in the vicinity. The annual monitoring is being conducted in 2010 in accordance with a separate procedure as part of the OEMP.

This additional noise measurement procedure has been prepared for short term testing, which is proposed to be conducted in operating conditions which are not normal because the UPS will be operated for the purpose of the testing rather than in response to market conditions.

The testing is proposed for the following reasons:

1. To determine the effectiveness of measures to reduce noise that have been installed over the last 12 months;
2. To provide information on the performance of the plant in relation to the UPS equipment supplier's contractual obligations.

As the noise measurements will be conducted outside of the normal operating conditions of the UPS, the potential impact of the noise experienced at residences might be greater than that normally experienced. These works however are important in providing Origin Energy with noise data and the timing of the test and its methodology is important to ensure this information is able to be used for the proposed purposes. Therefore, this Short Term Noise Measurement Procedure (STNMP) enables the testing to occur within a management framework that includes an appropriate community consultation, action and communication program.

The objectives of the STNMP are to:

- Establish a measurement technique;
- Ensure that any noise impacts are minimised to the extent that is reasonable and practicable;
- Outline the community consultation and actions proposed;

## 2 MEASUREMENT TECHNIQUE

In order to achieve the objectives for the testing, the noise will need to be measured for a range of operating conditions, in meteorological conditions that are conducive to the propagation of sound in the absence of any significant interfering background noise. The noise is proposed to be measured at the locations shown in Figure 2.1 below as a minimum, as well as at other strategic locations in the vicinity of the UPS.

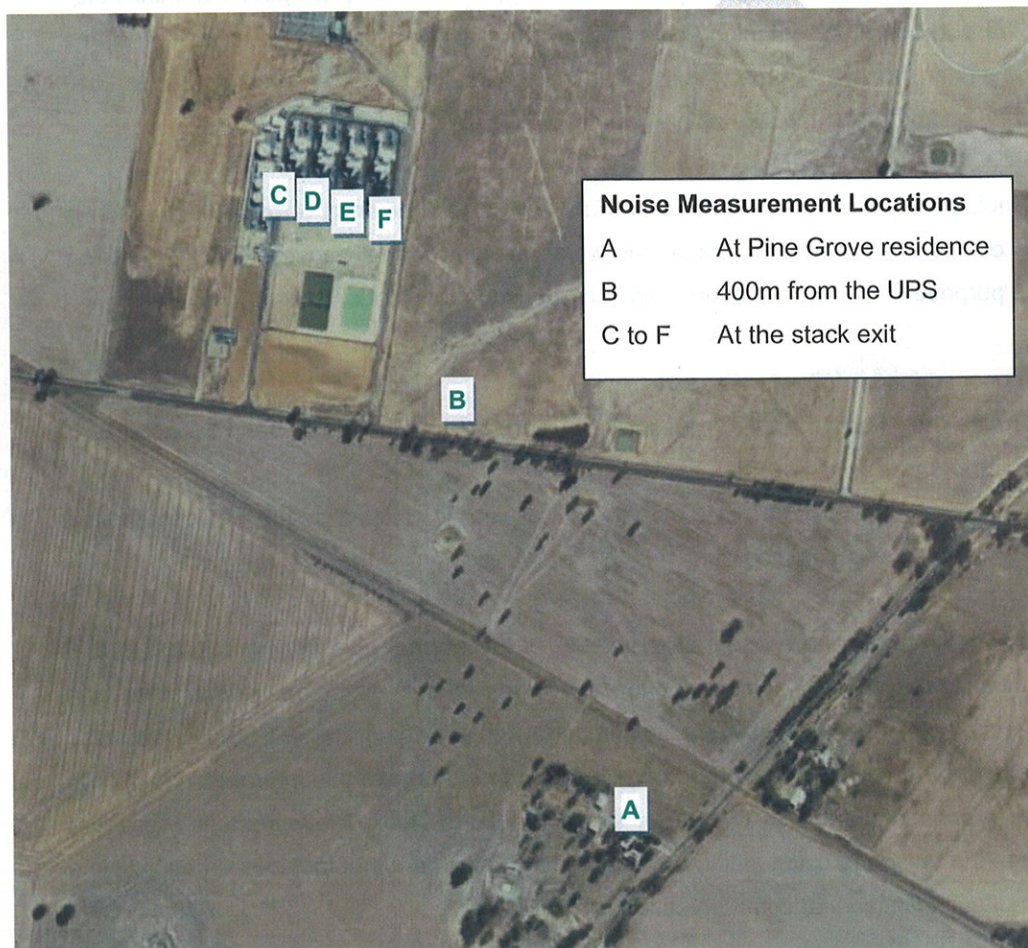


Figure 2.1 Noise Measurement Locations



In order to conduct the testing during a period of the lowest practical ambient noise levels and the highest potential for weather conditions conducive to noise propagation, the testing will need to be conducted on a clear still night with a light breeze in the direction from the UPS to the Pine Grove residence.

It is possible that the tests might be completed within a single night but this will be dependent on the results of the tests, the stability of the meteorological conditions during the test and the contribution of noise from other noise sources. Therefore, it is more likely that testing will need to be conducted over several nights. In ideal circumstances, the following timeline would be used:

#### **7 Days Prior to Test**

- Review weather forecast to confirm that potentially acceptable meteorological conditions will occur in 7 days.
- Prepare noise monitoring equipment

#### **5 Days Prior to Test**

- Confirm that weather forecast is still conducive to the noise measurement
- Inform gas and electricity traders of likely test date

#### **2 Days Prior to Test**

- Confirm that weather forecast is still conducive to the noise measurement
- Arrange travel to the site

#### **Day of Test**

- Site inductions
- Confirm that weather forecast is still conducive to the noise measurement
- Calibrate sound level meters
- Place unattended sound level meters in proposed location



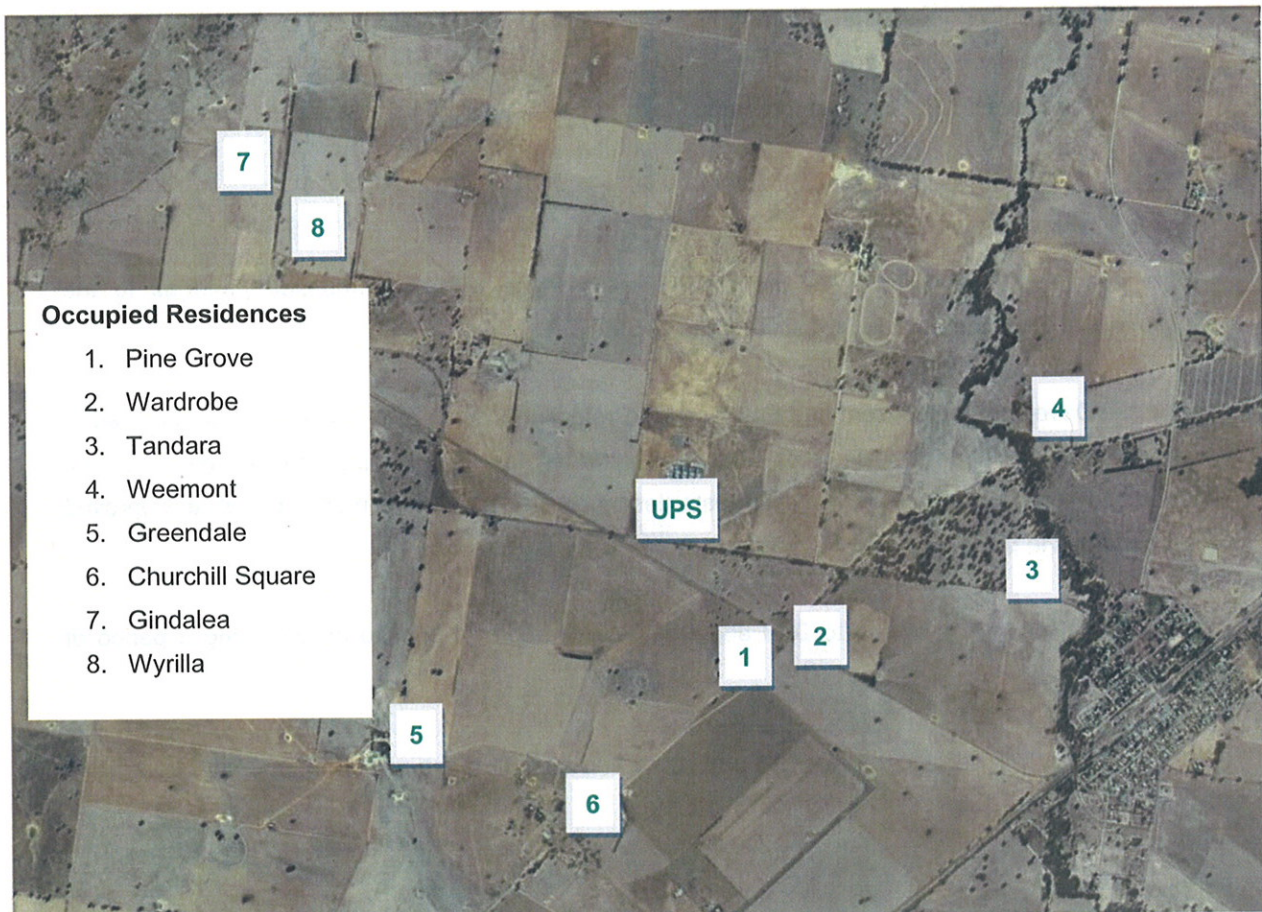
The following table outlines the sequence of plant operation and noise measurement periods to be conducted during a test. While the longest potential test period is provided in this timeline, the duration of the test will be minimised wherever practicable. It is proposed that four turbine units will operate throughout the test period, with the gas turbines sequentially stepped through each operating mode to provide variations in power output.

#### Night of Test

| Approximate Time | Activity                                                                 |
|------------------|--------------------------------------------------------------------------|
| 8:00pm           | Confirm that weather observations are conducive to the noise measurement |
| 10:00pm          | Measure ambient noise in the absence of noise from UPS (2 x 15 min)      |
| 10:30pm          | Start turbines                                                           |
| 11:00pm          | Begin testing in operating mode 1 (4 x 15 min)                           |
| 12:00pm          | Change to mode 2                                                         |
| 12:15pm          | Begin testing in operating mode 2 (2 x 15 min)                           |
| 12:45am          | Change to mode 3                                                         |
| 1:00am           | Begin testing in operating mode 3 (2 x 15 min)                           |
| 1:30am           | Change to mode 4                                                         |
| 1:45am           | Begin testing in operating mode 4 (2 x 15 min)                           |
| 2:15am           | Change to mode 5                                                         |
| 2:30am           | Begin testing in operating mode 5 (2 x 15 min)                           |
| 3:00am           | Change to mode 6                                                         |
| 3:15am           | Begin testing in operating mode 6 (4 x 15 min)                           |
| 4:15am           | Shutdown turbines                                                        |
| 4:30am           | Measure ancillary equipment (2 x 15min)                                  |
| 5:00am           | Calibrate equipment and remove from test area                            |

### 3 NOISE AT OCCUPIED RESIDENCES

Figure 3.1 indicates the location of occupied residences in the vicinity of the UPS.



**Figure 3.1 Occupied residences in the vicinity of the UPS**

The noise experienced at residences during the testing will be a combination of the noise from the operation of the UPS as well as the noise from activity (vehicle movements, voices etc) associated with the testing.

It is anticipated that the combined noise from the UPS and associated activity will exceed the WHO Guidelines (refer Appendix A) for sleep disturbance at the Pine Grove residence and possibly the Wardrobe residence but the criteria are expected to be achieved at all other residences.