Port Adelaide Energy Pty Ltd

June 2022

Snapper Point Power Station

Noise Management Plan

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Snapper Point Power Station
Noise Management Plan

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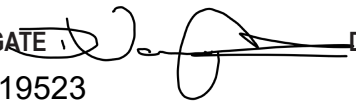
ENVIRONMENT PROTECTION AUTHORITY

THIS IS THE APPROVED Noise Management Plan

REFERRED TO IN CONDITION U-1406

OF EPA AUTHORISATION NUMBER 51513

DELEGATE  DATE 27/06/2022

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0	9 June 2022	Initial issue
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	Name	Date	Signature
Prepared by:	Adam Cook	9 June 2022	
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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Glossary

A-weighting	Frequency filter applied to measured noise levels to represent how humans hear sounds.
Acoustic Consultant	A person suitably qualified and experienced in the field of acoustic engineering. Such a person should be eligible for membership of the Australian Acoustical Society and employed by a company which is a member firm of the Association of Australasian Acoustical Consultants.
dB(A)	A-weighted decibels. A single number descriptor of the overall sound pressure level.
$L_{eq,T}$	Equivalent (energy averaged) noise level, for a measurement period, T. A noise descriptor used to represent a time varying sound level as a single number representation.
Noise Policy	South Australian *Environment Protection (Noise) Policy 2007*
SCADA	Supervisory Control and Data Acquisition The software and hardware control interface system for management of the power station

Abbreviations

DA	Development Authorisation
NMP	Noise Management Plan
PAE	Port Adelaide Energy Pty Ltd
PPPS	Pelican Point Power Station
SA EPA	South Australian Environment Protection Authority
SPPS	Snapper Point Power Station

1 Introduction

1.1 The Snapper Point Power Station Project

The Snapper Point Power Station (the Project) involves the de-commissioning, relocation and re-commissioning of five (5) trailer-mounted GE TM2500 Gen 8 aero-derivative turbine generators, and ancillary infrastructure, from an existing site at Elizabeth in Adelaide's northern suburbs, to a new site adjacent to the Pelican Point Power Station at Outer Harbor. The turbines were operated by APR Energy on behalf of the Government of South Australia (SA Government or the State) for emergency electricity generation, as part of South Australia's emergency power plant project.

Port Adelaide Energy Pty Ltd (PAE), an affiliate of Nexif Energy Australia Pty Ltd (Nexif Energy) has entered into an agreement with the SA Government to lease the turbines from the SA Government and operate them for commercial use for a period of 25 years. As part of the Project, the turbines will be converted from diesel to natural gas as the primary fuel, with diesel to be used as back-up fuel. It is proposed that the Project will connect into the nearby Pelican Point Power Station fuel gas yard (owned by Epic Energy) and Pelican Point Power Station switchyard (owned by ElectraNet).

It is noted that Development Approval for the Project was granted on 5 August 2020 (DA 040/V052/19), with an updated approval provided on 4 November 2020 that included a revision to Condition 10 (DA 040/V052/19 R1).

1.2 Site location

The Project site (the Site) is located adjacent to the Pelican Point Power Station at Outer Harbor, approximately 20 km north of Adelaide. The land is owned by Renewal SA and is leased by PAE for this Project. The Site is situated between the coastal waters of the Port River and the Pelican Point Power Station and is located within the City of Port Adelaide Enfield under the Industry Zone.

Figure 1.1 Site location

1.3 Noise Management Plan

This document is a Noise Management Plan, intended to address the EPA Licence Conditions 2.8.2, 2.8.3 and 2.8.4 (refer Section 3.3).

2 Noise sensitive receivers

2.1 Residential receivers

The closest residential noise sensitive receivers to the Site are in North Haven to the south-west of the Site. These are located approximately 2.1 km from the proposed location of the turbines.

The next closest noise sensitive receivers are in St Kilda, approximately 3.5 km to the north-east of the proposed Site.

For brevity, representative receiver locations are used to provide noise modelling results for established medium-density residential areas. The representative locations were selected such that noise levels for the surrounding residential properties would be equal to or less than levels at the representative locations.

The location of the representative receivers and the Site are shown in Figure 2.1.

Figure 2.1 Representative residential noise sensitive receivers

2.2 Non-residential receivers

The closest non-residential receivers to the Site are located at the Pelican Point Power Station (PPPS) Site. PPPS is industrial in nature, as an operating gas-fired power station. PPPS is itself a noise generator, however there are some areas on the PPPS Site where activity occurs which could be considered noise-sensitive. These are primarily indoor offices for administration and training, and an outdoor space used as an employee break area.

The noise-sensitive locations considered for PPPS are the locations shown in Figure 2.2.

- PPPS01: northern side of the training building
- PPPS02: grassed area north of the administration building
- PPPS03: northern side of the administration building

Figure 2.2 Noise sensitive receiver locations at PPPS

3 Noise criteria

3.1 Legislative and policy requirements

In South Australia, environmental noise management is legislated under the South Australian *Environment Protection Act 1993*.

Section 25(3) of the *Environment Protection Act 1993* provides the following General Environmental Duty:

> *"A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm."*

Compliance with the *Environment Protection Act 1993*, and subsequently the General Environmental Duty, is administrated by the South Australian Environment Protection Authority (SA EPA). For industrial sources of noise such as gas turbine power plants, compliance is assessed in accordance with the *Environmental Protection (Noise) Policy (2007)*.

3.2 DA Conditions of Approval

The relevant Conditions of Approval for noise emissions from operational of SPPS, as outlined in DA 040/V052/19 R1, dated 4 November 2020, are as follows:

Planning Conditions

6. *No more than two turbines can operate during night time hours (10pm – 7am) when the wind speed is less than three metres per second; and the wind direction is between 10 degrees and 40 degrees, until the following has been undertaken:*

    a. *A report is prepared by a suitably qualified Acoustic Engineer which demonstrates the effectiveness of the current equipped silencer by providing a noise modelling report to the reasonable satisfaction of the Environment Protection Authority (EPA) and the Minister for Planning and Local Government which demonstrates compliance with the Environment Protection (Noise) Policy 2007; or*

    b. *A report is prepared by a suitably qualified Acoustic Engineer and submitted to the reasonable satisfaction of the EPA and the Minister for Planning and Local Government which demonstrates compliance with the Environment Protection (Noise) Policy 2007 at maximum capacity and under worst case weather propagation during the commissioning stage of the turbines.*

Advisory notes

> *An environmental authorisation in the form of a licence is required for the operation of this development. The applicant is required to contact the Environment Protection Authority before acting on this approval to ascertain licensing requirements.*

3.3 EPA Licence

As noted in the DA Conditions of Approval, operation of SPPS is required to adhere to the requirements of an EPA Licence.

EPA Licence 51513 has been granted to PAE, as issued at 22 November 2021. This licence contains conditions related to noise emissions as detailed below:

2.8 Site Noise Minimisation (U – 1406)

The licensee must:

2.8.1 Take all reasonable and practicable measures to prevent noise from leaving the premises;

2.8.2 develop a Noise Management Plan to the Satisfaction of the EPA by the compliance date listed below

2.8.3 ensure the Noise Management Plan includes, but is not limited to:

a) detailed actions and response strategies that will be implemented to prevent and minimise noise emissions;

b) a methodology and framework for the provision of annual reports to the EPA on the implementation and effectiveness of the Noise Management Plan; and

c) a methodology and framework for providing public access to the Noise Management Plan (or any revised plan approved by the EPA) and to annual reports

2.8.4 implement the Noise Management Plan approved in writing by the EPA (or any revised plan approved in writing by the EPA)

Compliance Date: 28-Feb-2022

3.1 Noise monitoring and reporting

The licensee must:

3.1.1 as soon as practicable, but no later than three months after commissioning of the power generating turbines, engage an acoustic engineer to:

a) undertake noise measurements to determine the noise levels and the presence of noise characteristics from the operations conducted at the Premises, when measured and adjusted at sensitive receptors in accordance with the Environment Protection (Noise) Policy 2007;

b) ensure that the noise measurements are undertaken when each power generation turbine is operating under stable conditions, at a minimum of 90% of its nameplate capacity;

c) ensure that the noise measurements are undertaken during conditions most representative of potential worst case operational impact, between the hours of:

i. 7am to 10pm; and

ii. 10pm to 7am

3.1.2 ensure that at least seven days prior to undertaking the noise measurements, the proposed dates and time of the noise measurements are submitted to the EPA in writing.

3.1.3 prepare a report which includes, but is not limited to:

a) the results of the noise measurements, including a comparison of the results against previously submitted noise modelling reports and the applicable noise levels in the Environment Protection (Noise) Policy 2007;

b) the local weather conditions during the noise measurement period (including wind speed, direction, temperature); and

c) the locations of the noise measurement locations, and a rationale for the selection of these locations.

3.1.4 submit the report to the satisfaction of the EPA within 45 days of the completion of the noise measurements being undertaken.

3.4 Environment Protection (Noise) Policy (2007)

The Environment Protection (Noise) Policy 2007 (Noise Policy) forms the basis of assessment of operational noise from the Site, both against the General Environmental Duty and for compliance with EPA Licence conditions.

The Noise Policy provides Noise Goals for noise sources to achieve the General Environmental Duty. Part 4, Clause 18 of the Noise Policy provides the noise goals, as shown in Figure 3.1.

18—Compliance with noise goals satisfies general environmental duty

(1) The general environmental duty under section 25 of the Act is satisfied in relation to noise from a noise source, insofar as the noise affects particular noise-affected premises, if the noise complies with the noise goals.

(2) The noise complies with the noise goals if measurements taken in relation to the noise source and the noise-affected premises show that—

(a) the source noise level (continuous) does not exceed the background noise level plus 5 dB(A); or

(b) the source noise level (continuous) does not exceed the indicative noise level for the noise source.

Figure 3.1 Excerpt from the Noise Policy defining Noise Goals

3.4.1 Noise criteria

Noise criteria are set as either the background noise level plus 5 dBA, or the Indicative Noise Levels. Indicative Noise Levels are determined based on the land uses principally promoted by the South Australian Planning and Design Code.

The background noise level is defined the ambient noise level measured over a period when the noise from the Noise Source is absent from the measurement place. Procedures for determination of the background noise level are provided in Clause 15 of the Noise Policy.

Indicative Noise Levels applicable for nearest residential receivers to the Site (refer to Figure 2.1) are

- 52 dB(A) $L_{eq,15min}$ during day time periods (7am – 10pm).
- 45 dB(A) $L_{eq,15min}$ during night time periods (10pm – 7am).

Indicative Noise Levels applicable for the PPPS receiver locations (refer to Figure 2.2) are:

- 70 dB(A) $L_{eq,15min}$ during day time and night time periods (24 hours).

3.4.2 Noise character

In accordance with the Noise Policy, the measured source noise level must be adjusted by the following amounts when comparing to Indicative Noise Levels, if the noise source contains modulation, tonal, impulsive, or low-frequency characteristics:

+5 dB(A) if the noise source contains 1 characteristics.

+8 dB(A) if the noise source contains 2 characteristics.

+10 dB(A) if the noise source contains 3 or 4 characteristics.

These adjustments are not applicable if assessing against the background +5 dBA Noise Goal.

4 Noise management

4.1 Noise management actions

PAE will manage noise emissions from SPPS through the following actions:

- Prior to site commissioning, ensure any operation of turbines for testing purposes is undertaken in accordance requirements for noise mitigation Operational Restrictions noted in the Development Approval Planning Conditions, unless written approval is provided by SA EPA.
- Undertaking acoustic testing within three months of completion of site commissioning to confirm turbine noise emissions are compliant with noise criteria (refer Section 4.2.1.1).
- Complying with the following Operational Restrictions when applicable, until it is demonstrated that they are not applicable through the method outlined in Planning Condition 6(a) or 6(b):
  No more than two turbines can operate during night time hours (10pm – 7am) when the wind speed is less than three metres per second; and the wind direction is between 10 degrees and 40 degrees.
- Undertaking measurements of on-Site meteorological conditions to identify times when Site activity is subject to the Operational Restrictions.
- Undertaking Annual Noise Monitoring to capture any changes in noise emissions over time (Section 4.2.1.2)
- Undertaking noise monitoring if changes are made to on-Site noise-generating items due to required maintenance or upgrades. (Section 4.2.1.3).
- Responding to exceedance of noise level criteria by investigating the cause of the exceedance, determining reasonable and practicable noise mitigation measures, implementing mitigation where appropriate, and measuring post-mitigation noise levels (Section 4.3).
- Keeping a record of noise-related complaints, implementing and following an established compliant management procedure. (Section 4.5).

4.2 Monitoring

4.2.1 Noise monitoring

Noise monitoring will be undertaken at Project post-commissioning, annually, if maintenance or upgrades are undertaken to noise generating items, and in response to noise complaints (where appropriate).

Noise monitoring activities will be undertaken in general accordance with Part 3 of the Noise Policy, and the following:

- Measurement data and site observations will be documented in general accordance with Section 7 of Australian Standard *AS 1055.1:1997 Acoustics – Description and measurement of environmental noise* (AS 1055).
- Measurements will be undertaken by an Acoustic Engineer, defined as a person eligible for membership of the Australian Acoustical Society and employed by a member firm of the Associate of Australasian Acoustical Consultants.
- During the measurements, observations regarding noise character will be recorded, along with noise data required to analyse for characteristics. If noise character is observed and confirmed with measurement data, the character penalties defined in the SA EPA Noise Policy will be applied and noted in reporting.
- Measurements will be taken at outdoor, publicly accessible locations where noise levels are deemed representative of those received at the Noise Affected Premises defined in the Noise Policy.

- Noise measurements will not be undertaken at a location where it is deemed unsafe to do so, or where undue disturbance could be caused to members of the public or property owners.
- Measurement locations will include representative locations of those previously used for the noise level predictions, as relevant to the type and intent of the noise measurements. These locations are provided in Figure 4.1 and Figure 4.2 for residential localities.

Figure 4.1 Noise measurement locations – Representative Residential locations – North Haven

Figure 4.2 Noise measurement locations – Representative Residential locations – St Kilda

4.2.1.1 Commissioning measurements

Commissioning measurements are required by Section 3.1.1 of the SA EPA licence. PAE will engage an acoustic consultant to undertake these measurements within three months of Site commissioning of all turbines.

PAE will provide SA EPA with minimum seven days' notice of the proposed commissioning testing. Note that due to the dependence on specific weather conditions, it may not be possible to provide SA EPA prior notice of specific date/time when the commissioning noise measurements will occur. PAE will provide a SA EPA with a range of dates of when the testing is planned during which the testing could occur, subject to occurrence of suitable weather conditions.

The methodology for commissioning noise measurements will include:

- Measurements taken at the representative receiver locations in the two residential localities, as shown in Figure 4.1 and Figure 4.2.
- Measurements will also be taken for at least one of the three locations within the PPPS site, as shown in Figure 2.2, subject to site conditions.
- Measurements will be undertaken on three separate occasions for both daytime and night time conditions (i.e. six total noise measurement occasions for each residential receiver locality).
- Measurement occasions will be programmed for when meteorological conditions are forecast to correspond to worst-case propagation for the receiver locality. These conditions are:
  - Wind speeds less than 3 metres per second at ground level receiver height
  - Wind direction from source to receiver:
    - Northerly to north-easterly wind direction for the North Haven locality.
    - South-westerly for the St Kilda locality.

  It is noted that these conditions may correspond to those when Operational Restrictions apply at the Site, exemption to the Operational Restrictions for the purpose of undertaking the Commissioning Measurements would be sought and confirmed with SA EPA prior to commissioning measurements occurring.
- PAE will coordinate with the acoustic consultant to ensure that all five turbines are available to be operating at minimum 90% of nameplate capacity during the commissioning measurements.
- PAE will run all five turbines at minimum 90% of nameplate capacity for the required duration of noise measurements on each occasion (except for background/ambient noise measurements).
- Compliance testing may also require PAE to operate SPPS with two turbines at 90% of nameplate capacity, for noise testing under Operational Restriction conditions.
- PAE will nominate a period prior to, or post, noise measurements, when background/ambient noise levels can occur. During this time turbines will be shut down, and noise-generating Site activities will be minimised as far as possible.
- PAE will provide an on-site contact person that will coordinate with the acoustic consultant to ensure that the above turbine operating conditions are achieved.
- PAE will provide a log of the turbine output (from SCADA systems or otherwise) for each turbine for the duration of the commissioning measurements on each occasion.
- PAE will provide a log of measured meteorological data collected from on-site monitoring equipment (as detailed in Section 4.2.2) for the duration of the commissioning measurements

Reporting of results will be provided back to PAE within two weeks of the measurements and having received the required meteorological data and confirmation of Site operating conditions.

4.2.1.2 Annual measurements

PAE will engage an acoustic consultant to undertake annual noise monitoring to capture noise emissions from the operating Site. The measured noise levels will be compared to results of previous noise measurements and the applicable noise criteria.

The methodology for annual noise measurement is outlined below:

- Measurements will be taken at each of the locations provided in Figure 4.1. Measurements occasions will be programmed for when meteorological conditions are forecast to correspond to worst-case propagation for the North Haven locality. These conditions are:
  - Wind speeds less than 3 metres per second
  - Northerly to north-easterly wind direction.
- Measurements will be undertaken on three separate occasions when the Site is operating under conditions typical for the 12-month period.
- Measurements may also be taken in the St Kilda locality (at the locations shown in Figure 4.2) if noise levels at these receivers are shown to exceed the applicable noise criteria during commissioning testing. Worst case conditions for St Kilda receivers are:
  - Wind speeds less than 3 metres per second
  - South-westerly wind direction.
- PAE will coordinate with the acoustic consultant to ensure that all five turbines are available to be operating at minimum 90% of nameplate capacity during the annual measurements. If it is not possible for turbines to be available due to routine maintenance, scheduled or unscheduled downtime, this information should be provided to the acoustic consultant for documentation in the noise measurement reporting.
- PAE will nominate a period prior to, or post, noise measurements, when background/ambient noise levels can occur. During this time turbines will be shut down, and noise-generating site activities will be minimised as far as possible.
- PAE will provide an on-site contact person that will coordinate turbine operation with the acoustic consultant to ensure that noise measurements are achieved under operating and non-operating (background noise) conditions on each occasion.
- PAE will provide a log of the turbine output (from SCADA systems or otherwise) for each turbine for the duration of the noise measurements on each occasion.
- PAE will provide a log of measured meteorological data collected from on-site monitoring equipment (as detailed in Section 4.2.2) for the duration of the measurements on each occasion.

Reporting of results will be provided back to PAE within four weeks of the measurements and having received the required meteorological data and confirmation of Site operating conditions.

Results of annual noise measurements and compliance with the relevant criteria will be fed back to PAE. The process outlined in Section 4.3.1 will determine if an updated Noise Management Plan for SPPS is required in response to outcomes of annual noise monitoring.

4.2.1.3 Measurements after changes to noise generating plant

Changes to noise generating items may be required from time to time, due to maintenance, repairs, or addition of supplementary plant. If the item of plant which is changed is likely to have an impact on receiver noise levels, noise monitoring may be undertaken after the works to confirm the resulting impact on receiver noise levels. This is likely to be required for major works such as replacement of exhaust stack silencers, or installation of equipment for combined cycle operation.

Depending on the timing of the upgrade works, this noise monitoring may be undertaken as part of routine annual noise monitoring, or as a standalone exercise.

If undertaken as a standalone exercise, the methodology for noise measurements after changes to noise generating plant will include:

- Measurements taken at each of the locations provided in Figure 4.1 and Figure 4.2.
- Measurements will be undertaken on three separate occasions for both daytime and night time conditions (i.e. six total noise measurement occasions for each residential receiver locality).
- Measurement occasions will be programmed for when meteorological conditions are forecast to correspond to worst-case propagation for the receiver locality. These conditions are:
  - Wind speeds less than 3 metres per second at ground level receiver height
  - Wind direction from source to receiver:
    - Northerly to north-easterly wind direction for the North Haven locality.
    - South-westerly for the St Kilda locality.

  It is noted that these conditions may correspond to those when Operational Restrictions apply at the Site, exemption to the Operational Restrictions would be sought and confirmed with SA EPA for the purpose of undertaking the measurements.
- PAE will coordinate with the acoustic consultant to ensure that all five turbines are available to be operating at minimum 90% of nameplate capacity during the commissioning measurements.
- PAE will run all five turbines at minimum 90% of nameplate capacity for the required duration of noise measurements on each occasion (except for background/ambient noise measurements).
- PAE will nominate a period prior to, or post, noise measurements, when background/ambient noise levels can occur. During this time turbines will be shut down, and noise-generating Site activities will be minimised as far as possible.
- PAE will provide an on-site contact person that will coordinate with the acoustic consultant to ensure that the above turbine operating conditions are achieved.
- PAE will provide a log of the turbine output (from SCADA systems or otherwise) for each turbine for the duration of the measurements on each occasion.
- PAE will provide a log of measured meteorological data collected from on-site monitoring equipment (as detailed in Section 4.2.2) for the duration of the measurements

Reporting of results will be provided back to PAE within two weeks of the measurements and having received the required meteorological data and confirmation of Site operating conditions.

Results of noise measurements and compliance with the relevant criteria will be fed back in an updated Noise Management Plan through the controls outlined in Section 4.3.1.

4.2.1.4 Complaint response measurements

Noise measurements may be undertaken in response to complaints regarding noise from SPPS, if PAE or regulatory authorities deem measurements to be a required response to community concerns.

In these circumstances PAE will engage an acoustic consultant to undertake noise measurements to capture noise emissions from the operating Site under conditions corresponding to those of the noise complaint. The measured noise levels will be compared to results of previous noise measurements (where relevant) and to the applicable noise criteria.

The methodology for noise measurements in response to complaints is outlined below:

- Measurements will be taken at a location either on the complaint property (if permission to access property is granted) or at representative publicly accessible location in the vicinity of the complaint location.
- Measurements will also be taken at the closest location to the complaint out of those provided in Figure 4.1 and Figure 4.2, for comparison to previous noise monitoring results and noise modelling predictions.
- Measurement occasions will be programmed for when meteorological conditions are forecast to correspond to those under which the complaint occurred.
- PAE will coordinate with the acoustic consultant to ensure activity on Site (including turbine operation if relevant) corresponds to that when the complaint occurred.
- PAE will nominate a period prior to, or post, noise measurements, when background/ambient noise levels can occur. During this time turbines will be shut down, and noise-generating Site activities will be minimised as far as possible.
- PAE will provide an on-site contact person that will coordinate Site operation with the acoustic consultant to ensure that noise measurements are achieved under operating and non-operating (background noise) conditions.
- PAE will provide a log of the turbine output and relevant Site activity (from SCADA systems or otherwise) for each turbine for the duration of the noise measurements.
- PAE will provide a log of measured meteorological data collected from on-site monitoring equipment (as detailed in Section 4.2.2) for the duration of the noise measurements.

Reporting of results will be provided back to PAE within two weeks of the measurements and having received the required meteorological data and confirmation of Site operating conditions.

4.2.2 *Meteorological monitoring*

Monitoring of meteorological conditions is necessary for determining when noise levels at receivers are predicted to be highest, and for determining when noise mitigating Operational Restrictions apply, if applicable.

PAE will review weather forecast information as part of routine operations. Measurement of real-time conditions will be undertaken using on-Site meteorological monitoring equipment, the position of which is shown in Figure 4.3.

Figure 4.3 Location of on-site meteorological monitoring equipment

In the case of equipment downtime, fall-back weather observations can be obtained from the Bureau of Meteorology Outer Harbour (Black Pole) automatic weather station if necessary.

Details of on-site meteorological monitoring equipment are provided in Table 4.1.

Table 4.1 Details of on-site meteorological monitoring equipment

Parameter	Details
Make / Model	R. M. Young 5103
Position	Above control room, 10 metres above ground level
Meteorological parameters measured (unit of measurement)	Wind speed (m/s) Wind direction (degrees) Air temperature (°C) Parameters will be averaged over maximum 15-minute intervals
Data storage method	Monitoring equipment is input to SCADA control system for the Site.
Data storage capacity	SCADA data is stored for 12 months then archived.
Maintenance	Servicing and calibration checks every 12 months or as per manufacturer recommendation

4.3 Controls

4.3.1 Results from annual noise monitoring

Annual noise testing will be used to periodically determine if changes in receiver noise levels have occurred.

Outcomes from noise testing will follow the feedback process shown in Figure 4.4. If an exceedance of the noise criteria is measured, and noise levels from SPPS are identified as the source of the exceedance of criteria, SPPS will identify which components of Site are controlling and investigate the implementation of all reasonable and practicable noise mitigation measures.

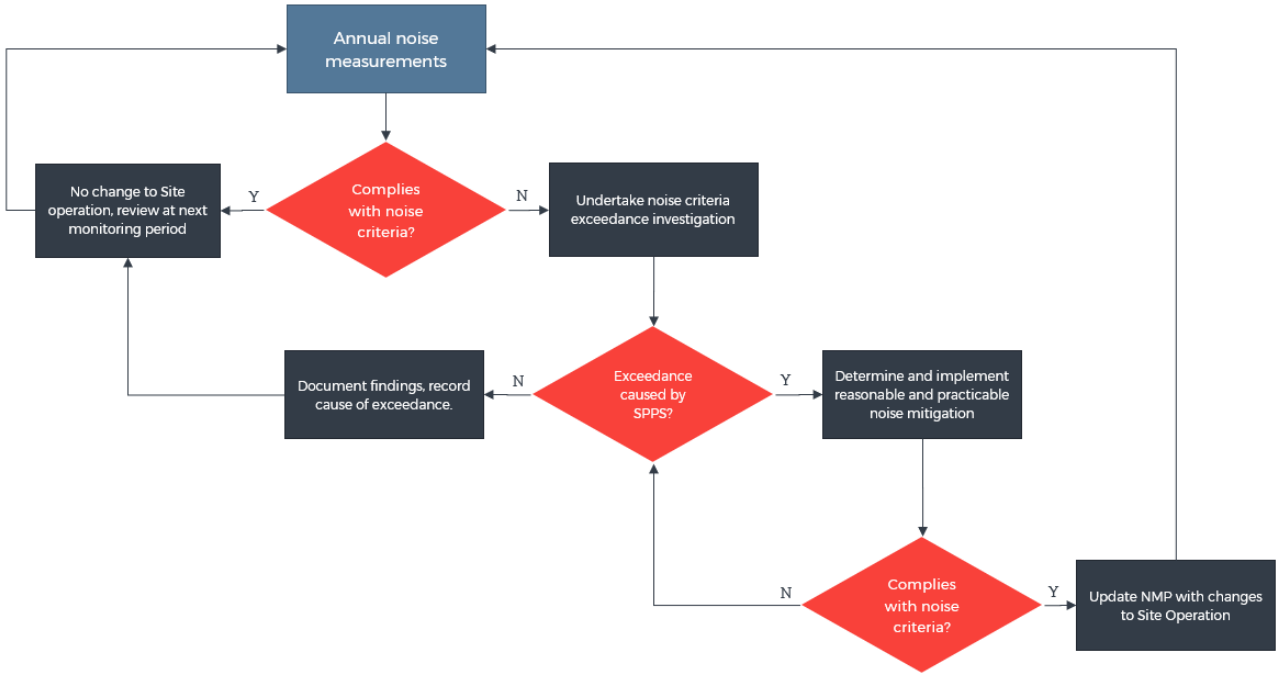

Figure 4.4 Annual noise monitoring feedback process

4.3.2 Criteria non-compliance process

Clause 19 of the Noise Policy provides the matters which should be considered when determining if action is required to be taken in response to an exceedance of the Noise Goals.

In the case of a measured exceedance, items (a) through (i) below will be considered.

a) the amount in dBA by which the source noise level (continuous) exceeds the relevant level and the frequency and duration of the noise level that give rise to that result;

b) any component of the ambient or extraneous noise that —

i. has a noise level similar to or greater than the source noise level (continuous); and

ii. has a similar noise character or similar regularity and duration to the noise from the noise source;

c) the times of occurrence of the noise from the noise source;

d) the number of persons adversely affected by the noise from the noise source and whether there is any special need for quiet at the noise-affected premises;

e) the land uses in the vicinity of the noise source when the kind of activity currently undertaken at the noise source was first undertaken there;

f) the kind of activity undertaken at the noise source and the other land uses existing in the vicinity of the noise-affected premises when the current occupancy of the noise-affected premises commenced;

g) whether Development Plan provisions applicable to the noise source have been introduced or changed since the kind of activity currently undertaken at the noise source was first undertaken there;

h) whether Development Plan provisions applicable to the noise-affected premises have been introduced or changed since the current occupancy of the noise-affected premises commenced;

i) *any other matter required to be taken into account under Section 25 of the Act or determined to be relevant by the Authority or the other administering agency.*

Actions to be taken in response to the exceedance will be developed in consultation with the SA EPA.

4.3.3 Noise mitigation implementation

The following are noise mitigation options for the Site which in the case of a measured exceedance could be considered in the context of the Noise Policy Clause 19 process. A noise mitigation approach is required to be revisited in the case of any new noise criteria exceedance, and tailored to mitigate the source of the exceeding noise measured/observed at the receiver. Additional mitigation may include:

- Modifications to the turbine units, such as replacement/upgraded exhaust or intake silencers.
- Implementation of acoustic shielding, such as screens or barriers.
- Acoustic treatment of receiver properties or buildings to reduce noise levels in noise-sensitive areas.
- Noise mitigating Operational Restrictions, to reduce Site noise emissions under certain environmental conditions, times of day, or operating parameters. This typically involves prohibiting the operation of particular noise sources during these times. Operational Restrictions need to be considered in the context of the effect on the feasibility of the operation of the plant.

A form of noise mitigating Operational Restrictions was devised and agreed with PAE and SA EPA. This Operational Restriction is currently in place on the SPPS Site in accordance with Planning Condition 6.

The turbines are currently fitted with OEM exhaust silencers as part of the standard GE TM2500 package. If additional mitigation requires modification to the turbines this will be subject to approval by the turbine owner.

4.4 Operational restriction process

As noted in the Development Authorisation Conditions of Approval, SPPS is required to implement Operational Restrictions under certain meteorological conditions during night hours (10pm-7am). SPPS will self-monitor and implement these conditions, ensuring that during night hours no more than two turbines will operate if meteorological conditions which correspond to the operational restrictions are observed.

The implementation of noise mitigating Operational Restrictions is to be implemented via the SPPS SCADA control system.

Data from the on-site Meteorological Monitor is input directly into the SCADA system, which is programmed to detect the time and weather conditions under which the Operational Restrictions apply. This process is shown diagrammatically in Figure 4.5.

When Operational Restrictions conditions are applicable, a visual and audible alarm will be triggered on the control panel for the operator of SPPS. The SCADA system is programmed to initiate an automatic normal shutdown of turbines such that only two will remain operational.

The turbines which remain online during Operational Restrictions will be rotated among the five turbines, with the SPPS operator able to nominate which turbines are to remain online.

Operational Restrictions will be monitored and implemented in 15-minute intervals, consistent with the Noise Policy measurement period. Start-up and shut down timeframes for the SPPS turbines are between 5 and 10 minutes, enabling a rapid response to changing meteorological conditions.

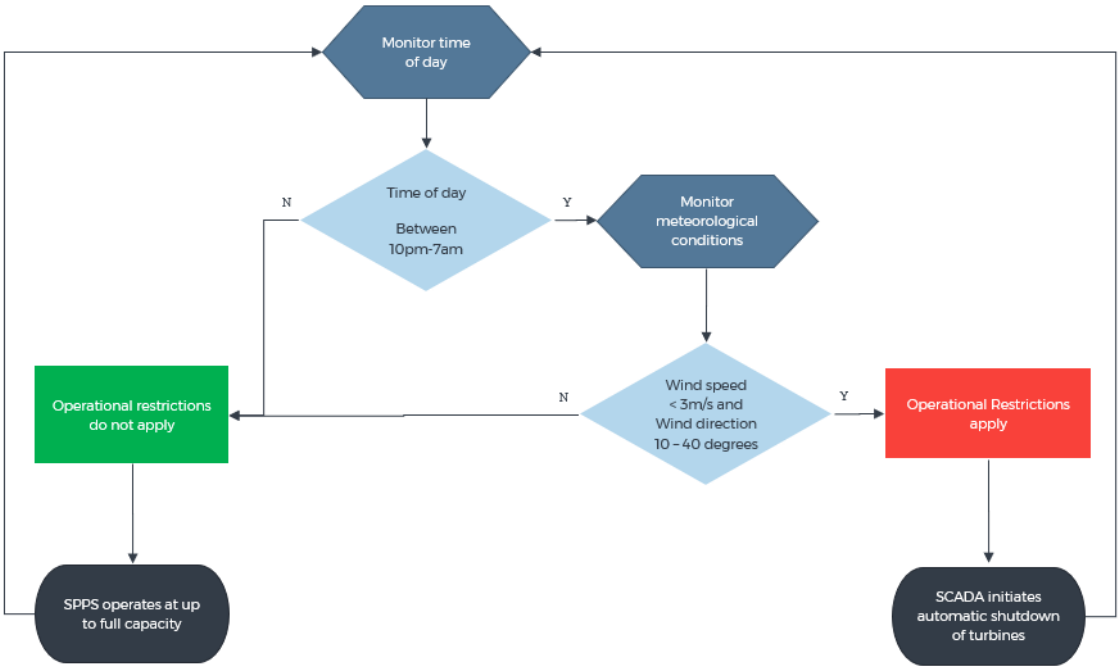

Figure 4.5 Operational Restriction process

Recorded data which logs turbine operation and metrological conditions will be stored on the SCADA system.

If the meteorological measurement equipment is offline or out of commission, by default SPPS will operate in night hours assuming that Operational Restrictions are in place.

Note that during emergency conditions, AEMO or the SA Government can override Operational Restrictions to operate SPPS at full capacity.

4.4.1 Process for lifting of operating restrictions

The noise mitigation Operational Restrictions from the Development Authorisation Conditions of Approval are required until such a point in time that the following occurs:

a *A report is prepared by a suitably qualified Acoustic Engineer which demonstrates the effectiveness of the current equipped silencer by providing a noise modelling report to the reasonable satisfaction of the Environment Protection Authority (EPA) and the Minister for Planning and Local Government which demonstrates compliance with the Environment Protection (Noise) Policy 2007; or*

b. *A report is prepared by a suitably qualified Acoustic Engineer and submitted to the reasonable satisfaction of the EPA and the Minister for Planning and Local Government which demonstrates compliance with the Environment Protection (Noise) Policy 2007 at maximum capacity and under worst case weather propagation during the commissioning stage of the turbines.*

As such, there are two methodologies which can be used to remove the requirement for Operating Restrictions at SPPS:

1 Undertake Sound Power Level testing of each of the turbines, and update noise modelling to incorporate the resulting Sound Power Levels. Updated noise modelling would need to predict compliance with the Noise Policy's Noise Goals.

2 Undertake noise measurements during commissioning that capture noise levels from SPPS operating at maximum capacity under worst-case meteorological conditions. Demonstrate that the measured noise levels at receivers are compliant with the Noise Policy's Noise Goals.

It is intended to use the second methodology, and commissioning-phase noise measurements required by the SA EPA Licence (outlined in Section 4.2.1.1) to demonstrate compliance with the Noise Goals. Providing that noise levels from commissioning measurements are found to satisfy the Noise Goals, planning condition 6b would be applicable for lifting Operational Restrictions.

4.5 Complaint management

PAE will maintain a register of any complaints received regarding operation of SPPS. A template for recording noise complaint details is provided in Appendix A.

PAE will action the following in their complaint management process:

- Record details of the complaint:
  - Name
  - Address
  - Preferred contact details
  - Time of contact
  - Time of occurrence
  - Nature of the issue (noise, air quality, other)
  - Details (Observed noise character, particular sounds, low frequency noise etc)
  - If the issue of concern has occurred before and/or frequently.
- Review operation of SPPS; confirm if SPPS was operational at the time subject to compliant.
- Determine if there are any atypical or unusual on-site conditions (e.g. any maintenance activities, breakdowns or faults which cause short-term increased noise levels).
- Review of any other sources of noise in the locality not under the control of Nexif.
- Review on-site meteorological conditions at the time subject of the compliant.
- Determine if any other complaints have been made under similar meteorological conditions or Site operating conditions.
- If complaint conditions are repeatable, consider if Complaint Response Noise Measurements (Section 4.2.1.4) should be undertaken. These measurements will:
  - Quantify receiver noise levels and noise character under complaint circumstances
  - Provide observations of the noise environment taken by an experienced acoustic consultant
  - Enable comparison of receiver noise levels to applicable noise criteria
  - Assist in determining if SPPS is the cause of the noise complaint, and if specific activities are causing the noise complaint.
- If valid exceedances are identified, and these are likely to persist or occur repeatedly, investigate appropriate noise mitigation measures.
- Provide feedback to complainant regarding actions taken, where appropriate.

4.6 Reporting

PAE will provide an annual report to SA EPA each year by 31 July, containing the following:

- Copy of the acoustic engineer's report from Annual Noise Monitoring.
- Summary of the application of noise mitigating Operational Restrictions within the previous 12 months
- Details of any changes to noise generating equipment on Site, and a copy of the updated Noise Management Plan where relevant
- Records of any noise complaints

4.7 Public access to Noise Management Plan

PAE will make the current revision of the Noise Management Plan available for download on their website, after the plan is endorsed/approved by SA EPA, at http://www.nexifenergy.com/project/snapper-point/.

Relevant annual reports will also be made available on the PAE website.

5 Conclusions

A Noise Management Plan has been prepared for the Snapper Point Power Station.

The Noise Management Plan provides details of monitoring and control methodologies which are in place to ensure that Port Adelaide Energy control noise emissions from the Site in accordance with requirements of the Development Approval, EPA Licence and the General Environmental Duty under the SA *Environment Protection Act (1993).*

The Noise Management Plan will be reviewed each year in response to Annual Noise Measurements. Updates to the plan will be made where relevant and provided to SA EPA for approval.

The current approved Noise Management Plan will be made available publicly for download on the Port Adelaide Energy website.

Appendix A

Noise complaint record template

A1 Noise complaint record template

Table A.1 Noise complaint record template

Information to be recorded	Details
Name	
Company (where relevant)	
Address	
Preferred contact method and details	☐ Phone ☐ Email ☐ Other Details:
Time of contact	Date: Time:
Time of occurrence	Date: Time:
Type of receiver	☐ Resident ☐ Business ☐ Other:
Details (Observed noise character, particular sounds, low frequency noise, interruption to activity, etc)	
If the issue of concern has occurred before and/or frequently	☐ Once off event ☐ Recurring Details of previous occurrence (where relevant):
Actions to be taken :	Follow up with complainant (Y / N) Undertake noise monitoring (Y / N) Other: