

WILGA PARK POWER STATION

Annual Environmental Management Report

Approval 07-0023

For period 1 January 2021 to 31 December 2021

Submitted by Santos NSW (Eastern) Pty Ltd as CSG Operator



Table of Contents

| 1. 2. 3. 4. 4.1 4.2 4.3 | Regulatory Context 4 Contacts 7 Actions from previous AEMR 7 Summary of operations 8 Gas 8 Power 8 Water 8 |
|---|--|
| 4.3.1 | Water transfers8 |
| 4.4 | Landscape and Ecological Monitoring9 |
| 5. | Environmental Management and Performance9 |
| 5.1 | Environmental Management and Monitoring9 |
| 5.2 | Environmental Performance |
| 5.3 | Comparisons against Criteria and EA Predictions |
| 5.1.1 | Comparisons against EIS predictions |
| 5.4 | Environmental Incidents and Improvements |
| 6. | Community and Stakeholder Relations |
| 6.1 | Complaints |
| 6.2 | Engagement |
| 7. | Rehabilitation and Disturbance |
| 8. | Activities Proposed for next AEMR period |
| | dix 1 Quarterly Compliance Audit |
| Appen | dix 2 Location of the Compensatory Habitat (Offset) Area |
| Table | of Figures |
| Figure | 1: Wilga Park Power Station Layout5 |
| Figure | 2: Location of the Wilga Park Power Station and Pipeline including CSG infrastructure |

| Name of Operation | Wilga Park Power Station | |
|--|--|--|
| Name of Operator | Santos NSW (Eastern) Pty Ltd | |
| Development consent / project approval# | MP 07_0023 | |
| Name of holder of development consent | Santos NSW (Eastern) Pty Ltd | |
| Petroleum Exploration Licence # | PEL238 | |
| Name of holder of Petroleum Exploration Licence | Santos NSW Pty Ltd (ACN 094 269 780) and Energy Australia Narrabri Gas Pty Ltd (ACN 147 609 729) | |
| | From 22 December 2021 Santos NSW (Narrabri Gas) Pty Ltd | |
| Water licence # | N/A for this operation | |
| Name of holder of water licence | N/A | |
| Annual Review start date | 1 January 2021 | |
| Annual Review end date | 31 December 2021 | |
| I, Brendon Child, certify that this annual environmental management report is a true and accurate record of the compliance status of the Narrabri Coal Seam Gas Utilisation Project for the reporting period 1 January 2021 to 31 December 2021 and that I am authorised to make this statement on behalf of Santos NSW (Eastern) Pty Ltd. | | |
| Name and Title of authorised reporting officer | Brendon Child Area Manager Scotia, Arcadia and Narrabri | |
| Signature and Date | | |

1. Regulatory Context

This Annual Environmental Management Report (AEMR) has been prepared for submission to the NSW Department of Planning, Industry and Environment (DPIE) by Santos NSW (Eastern) Pty Ltd to satisfy commitment 11.7 in the Final Statement of Commitments made by the previous operator Eastern Star Gas (ESG) for the Narrabri Coal Seam Gas Utilisation Project (Project). ESG submitted the original Project Application 07-0023 in early 2007 with the approval being granted by DPIE in December 2008 (Approval Doc. No. S07/00277). There was no specific obligation in the conditions of approval for the submission of an Annual Environmental Management Report or an Annual Review document.

The Wilga Park Power Station was originally constructed and operated pursuant to a development consent granted by Narrabri Shire Council on 14 November 2002 and subsequent modifications. The consent and modifications allowed the power station to operate up to a capacity of 12 megawatts using gas extracted from the Coonarah Gas Field in PPL 3.

On 2 December 2008, the Minister for Planning approved the Narrabri CSG Utilisation Project under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) (MP 07_0023).

The approved project includes:

- construction and operation of gas gathering systems at the Bibblewindi and Bohena Coal Seam Gas Pilots;
- construction and operation of gas compression facilities at the Bibblewindi and Bohena Coal
 Seam Gas Pilots;
- construction of an approximately 32 kilometre buried gas flow line between the Bibblewindi and Bohena Pilot and the Wilga Park Power Station; and
- the staged expansion and operation of the Wilga Park (base load) gas-fired power station from a
 capacity of 12 megawatts to 40 megawatts, fuelled by coal seam gas extracted from the
 Bibblewindi and Bohena Coal Seam Gas Pilots.

Construction works under the then Part 3A approval commenced in 2009. Further works continued during 2010-2012. The works which have been undertaken under the approval to date include:

- construction of the gas gathering systems at the Bibblewindi and Bohena CSG Pilots;
- construction of the gas compression facilities for the Bibblewindi and Bohena CSG Pilots;
- construction of the 32 kilometre buried gas flow line between the Bibblewindi and Bohena pilots and the Wilga Park Power Station; and
- installation of 4 x 3MW gas generators at Wilga Park Power Station together with a switch room, gas conditioning skid, auxiliary transformers, ventilation fans, substation upgrade and other related equipment.

- Installation of an additional 2 x 3MW gas generators at the Wilga Park Power Station
- Installation of a slug catcher at Wilga Park Power Station on the 32 kilometre buried gas flow line

The Minister for Planning approved a modification to the Narrabri CSG Utilisation Project on 11 February 2011 (MP 07_0023 MOD 1). The modification changed condition of approval (CoA) 2.34 relating to the submission date for the compensatory habitat package required.

A further modification to the project was approved on 14 March 2012 (MP 07_0023 MOD 2) allowing the temporary use of the gas flow line to transfer produced water. The approval for this modification allowed the transfer of water until 28 February 2013.

On 18 July 2014, the Wilga Park Power Station (WPPS) was approved to receive gas from all wells located within PAL 2 and PPL 3 following the application of Santos Narrabri Coal Seam Gas Utilisation Project (MP 07 0023 MOD 3). The approval allowed for:

- 1. Installation of a riser on the existing buried gas flow line which would allow materials (gas and liquids) to be diverted to the Leewood Produced Water Facility;
- 2. Use of the gas flow line to transfer liquids (including fresh water, produced water and brine) between the Tintsfield ponds and the Bibblewindi Water Transfer facility and to the Leewood Produced Water Facility; and
- 3. Use of coal seam gas from existing or future wells within PAL 2 or PPL 3 at the Wilga Park Power Station.

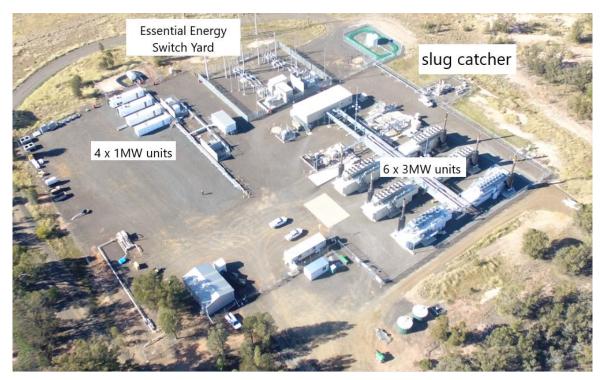


Figure 1: Wilga Park Power Station Layout

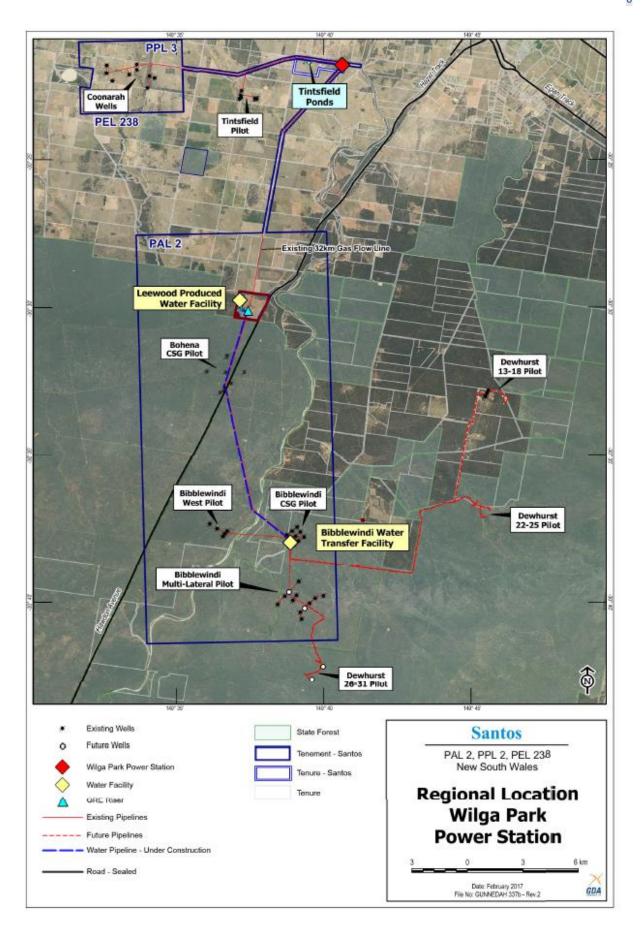


Figure 2: Location of the Wilga Park Power Station and Pipeline including CSG infrastructure

The most recent modification to the approval was in October 2019, for the installation of a slug catcher for capturing slugs of solids as a result of gas pipeline cleaning at the pipeline entry into the power station site.

The relevant approvals for the development are:

- MP 07_0023 approval (as amended);
- PEL 238.

On 22 December 2021 Santos aquired all shares in EnergyAustralia Narrabri Gas Pty Ltd. This means that EnergyAustralia Narrabri Gas Pty Ltd is now a Santos subsidiary and Santos effectively holds 100% of the working interests in the Narrabri Project, including the Wilga Park Power Station. Santos has changed the name of the company from 'EnergyAustralia Narrabri Gas Pty Ltd' to 'Santos NSW (Narrabri Gas) Pty Ltd'.

Santos holds an Environmental Protection Licence (EPL 20350) for the operation of pilot wells and water management in PEL238, PAL2 and PPL3. The EPL 20350 does not apply to the operation of the Wilga Park Power Station.

2. Contacts

The author of this report is Curtis Attard, Environmental Adviser (curtis.attard@santos.com) and is also the nominated point of contact in relation to this report.

3. Actions from previous AEMR

The approval letter for the 2019 AEMR required the following inclusions in future AEMRs:

| Required Action | Where addressed in this report |
|---|--------------------------------|
| A section on the landscape and ecological monitoring during the reporting period is to be | Section 4.4 |
| added in future AEMR's; | |
| Tabulate the semi-regular monitoring and reporting on weeds. | |
| (Section 12.1.4 of the approved Operational Environmental Management Plan.) | |

4. Summary of operations

In the period covered by this report, the Wilga Park Power Station operated continuously apart from scheduled maintenance. In 2019, Santos made preparations for increasing the generation output of the power station from the existing 16MW to 22 MW.

In 2020, installation was completed and approval to operate two newly installed generators (GO5B and GO6B) up to a maximum of 6MW was obtained.

In July 2021, the Wilga Park Power Station operated above 16MW but below 22MW. This event triggered noise and air quality monitoring conditions to be undertaken within prescribed periods. All the required actions were completed and reports submitted to the Secretary as required by the conditions of approval.

4.1 Gas

Gas produced from the PAL 2 pilots is primarily consumed by the Wilga Park Power Station. Minor amounts are consumed by onsite power generation for surface equipment with the remaining gas either being flared at the Bibblewindi Flare or used in a gas generator at Leewood to power the water treatment plant.

4.2 Power

In 2021, the Wilga Park Power Station generated electricity from the gas produced in PAL2. Although the maximum operating capacity was increased to 22MW within the previous reporting period, the maximum average power generated (on a daily basis) was 17.4 MW

4.3 Water

No water is used in the generation of electricity at the Wilga Park Power Station. Any water needed at the power station is Narrabri town water brought to site by a tanker. The water is stored in poly tanks at the power station. Accordingly, there is no applicable water licence for the facility.

4.3.1 Water transfers

There have been occasions in the past that the pipeline used to convey gas to the Wilga Park Power Station, has been used for water transfer between the nearby Tintsfield Water Storage Ponds and either the Leewood Water Management Facility or the Bibblewindi Water Management Facility.

No water transfers took place during the reporting period.

4.4 Landscape and Ecological Monitoring

Inspections are conducted over the Bibblewindi Facilities to Wilga Park Power Station pipeline on a regular basis. Inspections focus on identifying potential environmental impacts such as pest plants. Records of these inspections are saved within Santos' EHS Toolbox.

Operators frequent the power station on a regular basis conducting visual inspections on the facility. Follow up actions are captured and assigned within Santos' EHS Toolbox.

Regular pest plant management is undertaken over the project area when required, particularly when seasonal conditions favour pest species.

5. Environmental Management and Performance

MP 07-0023 requires the development, approval and implementation of an Operation Environmental Management Plan (OEMP). The original plan was approved on 14 July 2009.

No review of the OEMP was required within the reporting period.

5.1 Environmental Management and Monitoring

Mandatory monitoring for noise and air discharges were undertaken during the reporting period and reports provided within the required timelines. These reports were accepted by DPIE.

| Monitoring for | Monitoring Trigger | Comment |
|----------------|--------------------|--|
| Air quality | >16MW | Required to be undertaken within 90 days of exceeding 12MW and at every stage of new generation capacity is added to the power station or as otherwise agreed with Secretary, and a report is required to be provided within two months of completion of the assessment. |
| Noise | >16MW | Required to be undertaken within 90 days of exceeding 12MW and at every stage of new generation capacity is added to the power station, and a report is required to be provided within twenty eight days of completion of the assessment. |
| Biodiversity | N/A | There were no new disturbances during the reporting period. The construction period ended in 2009, and pipeline corridors have been undergoing rehabilitation since that time. See also Section 7 for inspections of the pipeline corridor, and for the biodiversity offset. |

| Monitoring for | Monitoring Trigger | Comment |
|---------------------|--------------------|---|
| Heritage | N/A | There were no new disturbances during the reporting period. No aboriginal or non-aboriginal heritage items were discovered in the reporting period. |
| Water Management | N/A | See sections 4.3 and 4.3.1 |

As committed to in the approved OEMP, noise monitoring was undertaken within 90 days of the power station exceeding 16MW to determine compliance with Condition 2.8 of the approval. The Report for the monitoring event was provided to, and accepted by, the Secretary. The report is published on Santos' website (www.narrabrigasproject.com.au).

Point source air discharge monitoring was undertaken within 90 days of exceeding 16MW. Details are described in 5.1.1.

5.2 Environmental Performance

Statement of Compliance

| Were all conditions of the relevant approval complied with as they relate to the development in 2020 | |
|--|-----|
| 07_0023 | Yes |
| PEL 238 | Yes |

Appendix 1 to this report shows results of internal quarterly compliance reviews undertaken. Santos has in place a compliance management system to monitor its performance against conditions of approval. Inspections are scheduled through a corporate database (ComTrack). Results of inspections are saved within Santos' EHS Toolbox Audit and Inspection Manager. Any identified corrective actions are tracked through to completion.

Conditions which were triggered once the Power Station output exceeded 16 megawatts (MW) were outlined in ComTrack.

Mr Peter Smith of SLR Consulting Australia was approved as an Independent Environmental Representative (IER) on 10 May 2018. Mr Smith undertook a performance review of the operation of the Wilga Park Power Station in May 2019 as it relates to the increase in electricity generation.

He had 3 recommendations and the actions in response. Two recommendations have been completed as reported in the 2019 AEMR, with one recommendation still to be implemented as per the table below:

2019 Performance Review Actions

Recommendation

Santos engage an independent environmental audit in accordance with AS/NZ ISO 19011:2003

Guidelines for Quality and/or Environmental
 Systems Auditing within the next twelve (12)
 months (from 28 June 2019)

Action/Response

The anticipated audit as recommended by the IER was not conducted due to the following reasons:

- The anticipated increased power generation of up to 22MW was not realised within the reporting period (i.e. the power station only operated at a peak output of 17.4 MW.;
- In 2021, Santos implemented strict protocols to restrict personnel numbers onsite in accordance with government advice in relation to the COVID-19 pandemic. This would have restricted the access to available auditors.
- There is no requirement within the approval for independent environmental auditors, however Santos anticipates undertaking an independent environmental audit as per the recommendation, taking into consideration the factors as above.

An independent auditor will be engaged prior to the power station exceeding 22MW (i.e. next stage of increase).

5.3 Comparisons against Criteria and EA Predictions

Quarterly compliance audit documents as outlined in the Operation Environmental Management Plan are attached in Appendix 1 to this report. There were no non-conformances identified against the EA criteria within the reporting period.

5.1.1 Comparisons against EIS predictions

The EIS covered:

- construction and operation of gas gathering systems at the Bibblewindi and Bohena Coal Seam Gas Pilots;
- construction and operation of gas compression facilities at the Bibblewindi and Bohena Coal Seam Gas Pilots;
- construction of an approximately 32 kilometre buried gas flow line between the Bibblewindi and Bohena Pilot and the Wilga Park Power Station; and
- the staged expansion and operation of the Wilga Park (base load) gas-fired power station from a capacity of 12 megawatts to 40 megawatts, fuelled by coal seam gas extracted from the Bibblewindi and Bohena Coal Seam Gas Pilots.

The construction components occurred in 2009 and is outside the period covered by this Annual Environmental Management Report.

Emissions testing was undertaken between 7 and 8 December 2021 to confirm compliance condition 2.4. During the emissions testing event multiple engines were offline due to mechanical issues. The data collected was not representative of the typical operating capacity within the reporting period. This report remains in Draft format with re-testing occurring in Q1 2022. Santos advised The Department of Planning of this in September 2021 and was granted an extension, reference MP07_0023-PA-5. This report when finialed will be- published and available on the website https://narrabrigasproject.com.au.

The EIS refers to an instack nitrogen oxide (NO₂) discharge limit of 450mg/m³ set by the NSW DECC, Protection of Environment Operations (Clean Air) Regulation 2002. All generators at the Wilga Park Power Station tested below this trigger limit.

Noise assessments were undertaken between 8 to 10 February 2021 to confirm compliance condition 2.8 and 2.9 of the Planning Approval. During the second half of the reporting period two significant events occurred which, impacted the ability to conduct a second round of noise monitoring (although WPPS did not operate above approximately 16MW and additional capacity was not commissioned). The mandatory lock-down in NSW as a response to COVID-19 pandemic and the significant extreme weather events resulting in flooding in Narrabri — meaning field access for monitoring was not available. The following summer and winter monitoring events committed to in the approved OEMP are scheduled to occur within the 2022 reporting period. The report from the 2021 monitoring event was provided to DPIE in accordance with the conditions of approval and was accepted. The noise report is published on the website https://narrabrigasproject.com.au

5.4 Environmental Incidents and Improvements

There were no reportable environmental incidents made during 2021 for the power station and the gas pipelines. Equipment continued to be serviced in accordance with manufacturers' specifications. Santos has a preventative maintenance program in place.

6. Community and Stakeholder Relations

6.1 Complaints

Santos did not receive any complaints either directly, or referred, in relation to activities at the Wilga Park Power Station during the reporting period. As part of Santos' operations, complaints are entered to a database and the response provided or action taken is recorded. There have been no complaint trends over the previous five years of operation.

6.2 Engagement

Key community consultation activities for the Narrabri Gas Project are managed by Santos on a 'whole-of-project' basis, and relate to activities undertaken across PEL 238, PAL 2 and PPL 3 generally and are not specific to the Wilga Park Power Station.

There is a comprehensive Community Consultation Plan in place for PEL 238, stakeholders have been identified, and a risk-based assessment undertaken on the level of impact or benefit those activities may potentially have on stakeholders and the community.

Santos does not retain separate consultation records for the Wilga Park Power Station; however community activities undertaken in the similar reporting period (1 September 2020 to 31 August 2021) for the PEL 238 licence area demonstrate the comprehensive community engagement activity for this licence area, including Wilga Park Power Station. However, throughout the period, there have been intermittent social gathering and stay at home restrictions in the licence area associated with COVID-19 Public Health Orders that have limited the opportunity to host and participate in activities such as face to face meetings and community site tours. Activities that were undertaken include:

- There were around 100 visitors to Santos Narrabri shopfront;
- 7 Community and field site tours were hosted in the licence area (almost all of which included a visit to the Wilga Park Power Station);
- The Narrabri Gas Project website has been maintained; Monthly Activity Updates for PEL 238 activities were distributed to over 430 individuals each month;
- Three Narrabri Gas Project Community Consultative Committee meetings.

There are well established consultation tools in place, and this is complementary to the mature relationship that Santos has with stakeholders in the PEL 238 licence area. These tools provide ongoing opportunities for stakeholders and members of the community to learn about, provide input to, and raise concerns about activities that Santos is conducting, or planning to conduct including those at the Wilga Park Power Station. This includes:

| Consultation Activity Frequency | |
|---------------------------------|---|
| Narrabri Gas Project CCC | Quarterly or as determined by the Chair and committee members |
| Face to face meetings | Regular face to face meetings are held with key stakeholders relevant to their level of interest in activities |
| | From March 2020, face to face meetings have been restricted because of the social gathering restrictions associated with COVID-19. |
| | Santos continues to liaise regularly with landholders and key stakeholders by email and telephone and meeting restricted to essential activities. |
| Community Site Tours | From March 2020, participation in community events and the opportunity to offer community site tours has been limited because of the social gathering restrictions associated with COVID-19. Santos continues to distribute Monthly Activity Updates to subscribers, monthly advertisements in the Narrabri Courier and Wee Waa News and providing updates to the community for key matters. Santos is committed to supporting government and community efforts to limit the spread of COVID-19. Access to Narrabri operational sites is restricted to staff and contractors who meet strict screening procedures and community site tours are on hold in line with physical distancing and social gathering restrictions. Santos will continue to monitor the NSW Government health advice and implement measures in accordance with the directives issued. |
| Communication tools | An email and a contact telephone number for the Narrabri Shopfront is referenced on Santos website and external printed documentation Enquiries are answered promptly, and issues raised are |
| | recorded in a consultation database |
| Activity Update Reports | Monthly activity updates are emailed to key stakeholders, uploaded to the website, and included monthly in the local newspaper Updates are distributed to the Narrabri Gas Project CCC |
| | members to disseminate to members of their respective |
| Mandia III. data | organisations Media releases on key announcements will continue and |
| Media Updates | Santos' Facebook page will provide information through social media channels |

| Consultation Activity | Frequency |
|-----------------------|---|
| Santos shopfront | The Shopfront in Narrabri is open by appointment during business hours with COVID-19 arrangements in place. |

7. Rehabilitation and Disturbance

There was no additional disturbance during the reporting period. As previously reported, all rehabilitation along pipeline corridors has been monitored quarterly. Santos maintains contact with private landholders who have the pipeline passing through their properties and attend to matters requiring attention. During the reporting period, minor subsidence and was observed at locations along the pipeline. These matters were attended to with actions recorded in Santos' EHS Toolbox database.

8. Activities Proposed for next AEMR period

- Undertake 2022 summer and winter noise monitoring as triggered by the operation of the power station above 16MW in the 2021 reporting period. Annual emissions monitoring to be undertaken.
- Routine scheduled maintenance in accordance with manufacturers' specifications.
- Independent environmental audit to be undertaken if operating conditions exceed the next trigger level taking COVID-19 impacts into consideration as recommended by IER.
- Ongoing engagement of the Independent Environmental Representative in accordance with Condition 6.1 of MP 07_0023.

END OF REPORT

Appendix 1 Compliance Audit for AEMR reporting period **Auditor:** Curtis Attard

| Operations Compliance Audit | Comments / Corrective Action |
|--|--|
| 1 Air Quality | |
| SEC 3.2 and 3.3 Air Quality Monitoring | YES. |
| Has the facility exceeded the 12 MW or 40 MW (or agreed) monitoring triggers during the reporting period (refer to SEC 3.1 and 2.4 if triggers exceeded). If so, refer to the following: | Wilga Park Power Station operated above 12MW commencing 22 nd December 2018. |
| SEC 3.1 Air Quality Monitoring | YES |
| Has air quality monitoring been completed during the reporting period in accordance with the appropriate methodology of Table 3 of approval? | Annual Emissions Testing required by Schedule 2 Condition 3.1 (Table 3) of the approval conducted by Etkimo 7 ^h and 8 th December 2021 initially, follow up testing scheduled to occur in Q1 2022 as approved by the Department. |
| SEC 2.4 Discharge Limits Does air quality monitoring confirm compliance with maximum allowable discharge concentration limits listed | YES |
| in table 1 of approval | |
| SEC 2.2 - Odour | NO. |

Are any discernible odours apparent at Wilga Park at or around the generators or any part of the facility

| Operations Compliance Audit | Comments / Corrective Action |
|--|--|
| 2 Noise and Vibration | |
| SEC 3.5 Noise Monitoring | NO. |
| Has the facility exceeded the 16 MW monitoring triggers (next new stage of power generation) during the reporting period? If so, refer to the following: | Wilga Park Power Station operated above 12MW commencing 22 nd December 2018 – noise monitoring in accordance with Condition(s) 2.8 and 2.9 and Condition 3.5 completed in the 2021 AEMR period. |
| SEC 2.9 Operational Noise Criteria Has noise monitoring been conducted during the reporting period in accordance with the methodology listed in SEC 2.9? | N/A for reporting period. |
| SEC 2.8 Operational Noise Criteria Does noise monitoring confirm compliance with maximum allowable noise contributions listed in table 2 of the approval? | N/A for reporting period. |
| SEC 2.10 to SEC 2.23 – Noise Related Actions | N/A for reporting period. |

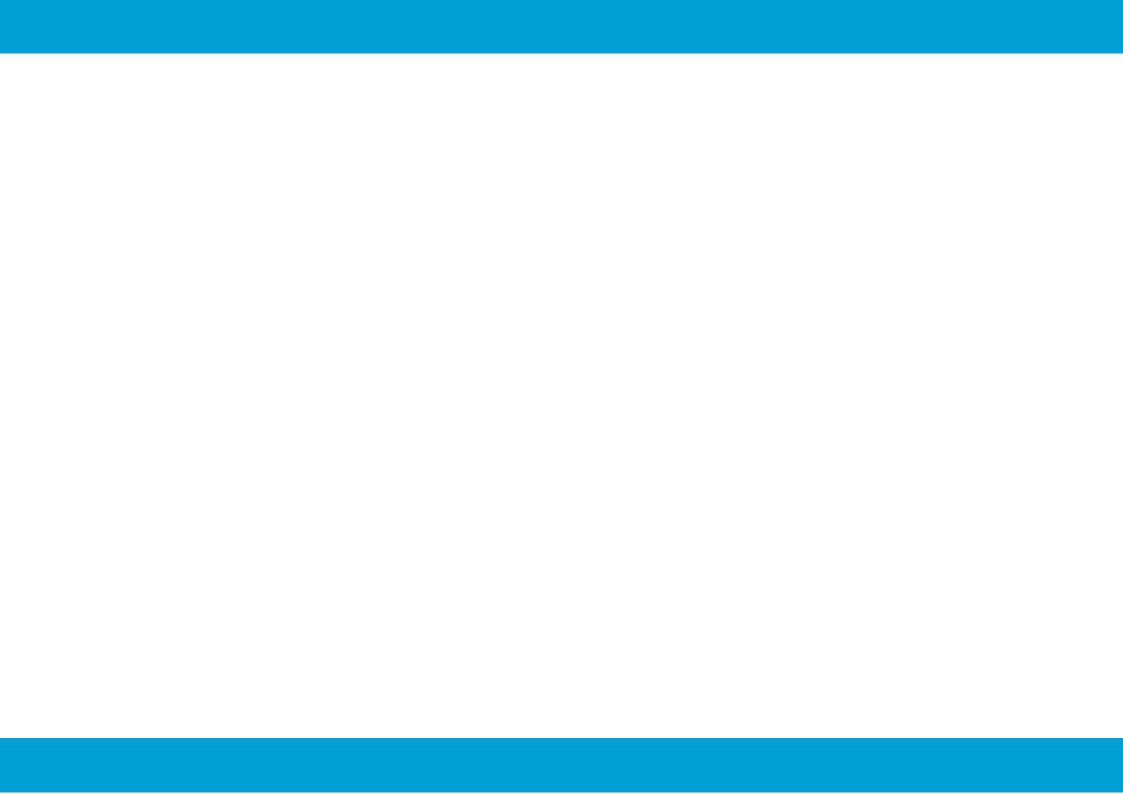
| Have there been any actions taken consistent with noise mitigation and land acquisition outlined in SEC 2.10 to 2.23. Outline any actions taken in detail. | |
|--|--|
| SEC 2.5 Does vibration monitoring confirm that operations does not exceed the preferred vibration values for low probability of adverse comment presented in DECC guidelines stated in SEC 2.5. | Not required as per the Operational Environment Management Plan, which was approved by the previously named NSW Department of Planning and Environment 13 th December 2018. |

| Operations Compliance Audit | Comments / Corrective Action |
|--|------------------------------|
| 3 Waste Management | |
| Are the operational sites clear of general rubbish and receptacles being utilised? | YES |
| SEC 2.27 Waste generation and management Is there any evidence of waste generated outside of the site being used for storage, treatment, processing | NO |
| SOC – Are used lubricants being stored in approved tanks for collection by a licensed contractor? | YES |

| Operations Compliance Audit | Comments / Corrective Action |
|---------------------------------|------------------------------|
| 4 Traffic and Transport Impacts | |

| Are all current operational haulage routes identified prior to construction period in good working condition? | YES |
|---|-----|
| Has there been any dispute with any relevant roads authorities as to the roads condition or state of repair? | NO |

| Operations Compliance Audit | Comments / Corrective Action |
|---|------------------------------|
| 5 Hazard Auditing | |
| SEC 3.6 Hazard Audit Report | NO. |
| Have any of the events specified in SEC 3.6 occurred during period that requires a hazard audit report to be conducted? | |



Appendix 2 Location of the Compensatory Habitat (Offset) Area

