

# Independent Environmental Audit

Bayswater Power Station Water Management Upgrade



# Independent Environmental Audit

## Bayswater Power Station Water Management Upgrade

Client: Macquarie Generation

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Prepared by

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## Quality Information

Document Independent Environmental Audit




Ref 60220229

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Prepared by Kate Micheltmore

Reviewed by Graham Taylor

### Revision History

| Revision | Revision Date | Details                            | Authorised  |   |
|----------|---------------|------------------------------------|---|---|
|          |               |                                    | Name/Position                                     | Signature   |
| A        | 27-Nov-2012   | Draft for client review            | Peter Horn<br>Associate Director -<br>Environment |   |
| B        | 09-Sept-2013  | Revised draft for client<br>review | Peter Horn<br>Associate Director -<br>Environment |  |
| C        | 12-Sep-2013   | Final for client review            | Peter Horn<br>Associate Director -<br>Environment |  |

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## Executive Summary

AECOM Australia Pty Ltd (AECOM) was commissioned by Macquarie Generation (MacGen) to conduct the Independent Environmental Audit (IEA) for the Bayswater Power Station Water Management Plant Upgrade project (the WTP Project) in accordance with NSW Department of Planning *Project Approval No. 06\_0047*, dated 6 April 2006 and subsequent modification approved 27 November 2007.

This Audit was undertaken generally in accordance with *AS/NZS ISO 19011:2003 – Guidelines for quality and/or environmental management systems auditing*.

This audit covers the period between April 2006 and December 2011, and includes:

- Comments on MacGen's compliance against the conditions of *Project Approval 06-0047 (as modified)*, its Statement of Commitments and other environmental approvals and management plans (Section 3.0);
- An assessment of the effectiveness of the environmental management at MacGen (Section 4.0); and
- A list of recommendations flowing from the findings of this audit (Section 5.0).

This audit was conducted by Peter Horn and Kate Michelmores and consisted of a detailed desktop review of documentation, interviews with key MacGen staff and a site visit of Bayswater Power Station Water Treatment Plant (WTP). Additional desktop reviews were conducted prior to and following the site inspection. A peer review of the IEA was conducted by Graham Taylor.

MacGen has in place an Environmental Management System (EMS) that is certified to the international standard ISO 14001:2004 – Environmental Management Systems – Requirements with Guidance for Use. The EMS includes the operation of the Water Treatment Plant (WTP) and forms the basis of the observed rigorous and consistent environmental management at the site.

Over 141 conditions and commitments in the documents listed above were audited, with a total of 16 non compliances. Many of the condition listed as Not Compliant were due to the audit team not being provided with the information required to verify compliance.

Since the time construction concluded, to the time this audit was carried out a lot of administrative changes occurred within MacGen's organisation. These changes have resulted in unsatisfactory record keeping of environmental information and documentation. In many cases during the audit it was evident that MacGen had originally satisfied their regulatory responsibilities outlined under *Project Approval 06\_0047 (as modified)*, however evidence to verify compliance at the time of the audit was unable to be obtained.

A consolidated list of recommendations stemming from these non compliances can be found in Section 5.0. Individual non compliances are outlined in more detail in Section 3.0. At the time of the audit, MacGen staff were made aware of many of these identified non compliances against conditions of Project Approval 06-0047 (as modified) and the Statement of Commitments.

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## 1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was commissioned by Macquarie Generation (MacGen) to conduct the Independent Environmental Audit (IEA) for the Bayswater Power Station Water Management Plant Upgrade project (the WTP Project) in accordance with NSW Department of Planning *Project Approval No. 06\_0047*, dated 6 April 2006 and subsequent modification approved 27 November 2007.

The IEA was undertaken consistent with Schedule 2 Condition 3.2 of the *Project Approval 06\_0047 (as modified)* and focused on verification of the site's compliance against key approvals, licences and supporting documents.

This report outlines the findings of the IEA and provides recommendations to improve compliance and environmental performance of the facility.

## 1.1 Background

MacGen is a state owned corporation, which owns and operates two coal-fired power stations, Bayswater and Liddell, situated between Singleton and Muswellbrook in the Upper Hunter region of New South Wales. Electricity produced in these power stations is sold in the wholesale National Electricity Market.

The original Development Application (ID. 825) for Bayswater Power Station was supported by an Environmental Impact Statement (EIS) that was lodged in June 1979. The Development Consent was issued in September 1980, with the power station commencing operations in the mid 1980s.

The *Project Approval 06\_0047 (as modified)* was issued on the 6 April 2006. Approval was based on the Environmental Assessment (EA) dated February 2006, prepared by HLA Envirosciences on behalf of MacGen and submitted to the NSW Department of Planning (DoP) as part of the Major Project Assessment.

The Water Treatment Plant (WTP) Project site at the Bayswater Power Station is located at the base of the cooling towers of the Bayswater Power Station.

The WTP Project has allowed MacGen to increase the effective salt removal capacity of the existing WTP from around 28,000 tonnes of salt removed per year to an effective removal capacity of 38,200 tonnes per year.

## 1.2 Report Structure

This report is structured as follows:

Section 1.0 provides an introduction, background, description and layout of the Project and provides a guide to the structure of the report.

Section 2.0 provides an outline to the IEA approach, including objective, scope, documents reviewed and limitations.

Section 3.0 provides a discussion of non compliances against the Project Approval and Statement of Commitments listed in the Environmental Assessment.

Section 4.0 describes the effectiveness of the environmental management relating to the Project.

Section 5.0 provides recommendations for measures or actions to improve the environmental performance of the Project.

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## 2.0 Audit Approach

### 2.1 Audit Objective

This IEA and subsequent report has been prepared pursuant to Schedule 2 Condition 3.2 of the *Project Approval 06\_0047 (as modified)*. Table 1 lists the requirements of this condition and indicates where each has been addressed in this IEA report.

**Table 1 Auditing conditions and where each is addressed in this report**

| Condition | Commitment  | Where addressed in this report |
|-----------|---|--------------------------------|
| 3.2       | Twelve months after the commencement of operation of the project, or as otherwise required by the Director-General, the Proponent shall commission an independent person or team to undertake an Environmental Audit of the Project. The independent person or team shall be approved by the Director-General, prior to the commencement of the Audit shall be submitted for approval of the Director-General no later than one month after the completion of the Audit. The Audit shall: | This Audit Report              |
| 3.2a      | be carried out in accordance with ISO 14010 - Guidelines and General Principles for Environmental Auditing and ISO 14011 - Procedures for Environmental Auditing;   | This Audit                     |
| 3.2b      | assess compliance with the requirements of this approval, and other licences and approvals that apply to the project;   | Section 3.0                    |
| 3.2c      | assess the environmental performance of the project against the predictions made and conclusions drawn in the documents referred to under Condition 1.1 of this approval;   | Section 3.0                    |
| 3.2d      | review the effectiveness of the environmental management of the project, including any environmental impact mitigation works; and   | Section 4.0                    |
| 3.2e      | assess the environmental performance of any remediation work of the existing seepage from the existing brine concentrator decant basin to the groundwater system.   | Section 4.0                    |

### 2.2 Audit Scope

This IEA was undertaken generally in accordance with *AS/NZS ISO 19011:2003 – Guidelines for quality and/or environmental management systems auditing* by the following AECOM staff:

- Peter Horn (Associate Director Environment) – Lead Auditor;
- Kate Michelmores (Graduate Environmental Professional) – Audit Assistant; and
- Graham Taylor (Technical Director/National Practice Leader) – Peer Review/Quality Control.

This IEA consisted of a detailed desktop review of documentation, interviews with key MacGen staff and a site visit of the Project on 11 September 2012. Attendees at interviews included:

- Kieran Scott – Acting Environment Manager/Operations;
- Kathryn Yates – Environment Officer;
- Paul Coffey – Veolia Site Manager; and

- Chris Rooney – Professional Officer (Bayswater Water and Chemical).

Agendas for the site meetings and itinerary for the site inspection components of the IEA are shown in Appendix A.

An inspection of Bayswater WTP facility was undertaken on 11 September 2012 from approximately 9am to 12pm. Weather at the time of the field inspection was warm and sunny, with an approximate temperature of 25 degrees.

## 2.3 Documents Reviewed

The documents and approvals used to assess compliance during this audit are listed below:

- *Project Approval 06\_0047 (as modified)* (Section 3.1)
- *Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning*, prepared by HLA Envirosiences Pty Ltd and dated February 2006 (Section 3.2)

## 2.4 Audit Limitations

The AECOM audit team received complete cooperation from all staff during the IEA. However, the following issues arose during the IEA which limited, to some extent, its findings:

- Opinions presented in this report apply to the site's conditions and features as they existed at the time of AECOM's site visit in 11 September 2012. They necessarily cannot apply to conditions and features which AECOM is unaware of and has not had the opportunity to evaluate.
- The conclusions presented in this report are professional opinions based solely on AECOM's visual observations of the Project site and the immediate vicinity, and upon AECOM's interpretations of the documentation reviewed, interviews and conversations with personnel knowledgeable about the site and other available information, as referenced in this report. These conclusions are intended exclusively for the purpose stated herein, at the site listed, and for the project indicated.
- This report does not, and does not purport to, give legal advice on the actual or potential environmental liabilities of any individual or organisation, or to draw conclusions as to whether any particular circumstances constitute a breach of relevant legislation or a risk of environmental harm.

### 3.0 Environmental Compliance

This section addresses Schedule 2 Condition 3.2(b) and 3.2(c) of the *Project Approval 06\_0047 (as modified)*, which required the IEA to assess:

- Compliance with the requirements of this approval, and other licences and approvals that apply to the project; and
- The environmental performance of the project against the predictions made and conclusions drawn in the documents referred to under Condition 1.1 of the *Project Approval 06\_0047 (as modified)*.

Environmental Compliance was assessed as follows:

- *Project Approval 06\_0047 (as modified)* conditions and Statement of Commitments listed in the EA were reviewed to establish the Audit Criteria and Audit Protocol against which compliance was assessed;
- Relevant documents referred to in the *Project Approval 06\_0047 (as modified)*, and EA were reviewed; and
- A site inspection was conducted and interviewed were undertaken with MacGen personnel to progressively identify and obtain evidence to support audit findings.

This audit was conducted post construction of the Water Treatment Plant Upgrade. As such, there were difficulties in determining the level of environmental management employed during construction. In addition to this, the lack of evidence provided by MacGen to the audit team enhanced difficulties in verifying MacGen compliance. In many cases during the audit it was evident that MacGen had originally satisfied their regulatory responsibilities outlined under *Project Approval 06\_0047 (as modified)*, however evidence to verify compliance at the time of the audit was unable to be obtained.

In the assessment of compliance, the status of each condition is described as:

- “Complies”
- “Not Compliant”
- “Not Triggered” (used where conditions have not yet been activated due to activities not being commenced or requests not being made for example)
- “Not Able to be Verified” (used where compliance with conditions/commitments could not be supported with documentation or where conditions/commitments were unable to be audited due to time constraints).

A summary of these observed non compliances is outlined in Table 2.

**Table 2 Summary of Non Compliances Found and Recommendations made**

| Document   | Reference   | Non Compliances | Recommendations Made |
|--|-------------|-----------------|----------------------|
| Project Approval 06_0047 (as modified)   | Section 3.1 | 6               | n/a                  |
| <i>Environmental Assessment, Proposed Bayswater power Station Upgrade, Submission to NSW Department of Planning</i> , prepared by HLA Envirosciences Pty Ltd and dated February 2006 | Section 3.2 | 9               | Table 6              |

### 3.1 Project Approval 06\_0047 (as modified)

Table 3 shows the conditions that were found non-compliant with the *Project Approval 06\_0047 (as modified)*. A more detailed explanation of each condition and comments can be found in Appendix B. Recommendations stemming from the identified non compliances are listed in Section 5.0.

**Table 3** Identified Non Compliances against *Project Approval 06\_0047 (as modified)*

| Schedule | Condition | Commitment   | Audit Finding  |
|----------|-----------|--|--|
| 2        | 3.2       | Twelve months after the commencement of operation of the project, or within such period as otherwise agreed by the Director-General, the Proponent shall commission an independent person or team to undertake an Environmental Compliance audit of the project. The independent person or team shall be approved by the Director-General prior to the commencement of the Audit shall be submitted for the approval of the Director-General no later than one month after the completion of the Audit. The Audit shall: | Audit has occurred outside of allocated time frame. No evidence of an extension of the time frame agreed with the Director-general was provided. |

Table 4 shows the conditions of the *Project Approval 06\_0047 (as modified)* that were found to be non compliant due to the audit team not being provided with the required documentation to verify compliance.

**Table 4 Identified Non Compliance against Project Approval 06\_0047 (as modified) due to documents unable to be provided**

| Schedule | Condition | Commitment   | Audit-Finding   |
|----------|-----------|--|---|
| 2        | 1.4       | The Proponent shall, upon selection of the preferred option for water treatment (as outlined in Section 6.3.2 of the EA), submit a report to the Director-General which will:  | Reference to report has been found however actual report could not be provided.   |
| 2        | 1.4a      | a) provide detailed design information for the selected option;  | Reference to report has been found however actual report could not be provided.   |
| 2        | 1.4b      | b) demonstrate that the selected option is consistent with the envelope described in the <i>Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning</i> , prepared by HLA Envirosciences Pty Ltd and dated February 2006  | Reference to report has been found however actual report could not be provided.   |
| 2        | 1.4c      | c) demonstrate that the selected option complies with the design requirements of the Mine Subsidence Board   | MSB approval sighted, however no evidence of a response being submitted to DoP. A reference to the report has been identified, however actual report could not be provided nor evidence of submission to the DPI. |
| 2        | 2.3       | The Proponent shall prepare a Contaminated Ground Water Report specifying the works that will be undertaken by the Proponent to prevent, contain and remediate saline seepage from the Brine Concentrator Decant Basin. The report shall contain a proposed timeframe for the implementation of all works and measures proposed. The report shall be submitted to the DEC and the DNR by 15 August 2006, or within such timeframe as may otherwise be agreed by the DEC and the DNR. | Submission letter to DNR was unable to be provided to the audit team  |

### 3.2 Statement of Commitments

Table 5 shows the conditions that were found Non Compliant from the Statement of Commitments (SoC) listed within the *Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning*, Prepared by HLA Envirosiences Pty Ltd and dated February 2006. The conditions listed in Table 5 could not be found compliant as the required information was unable to be provided to the audit team.

A more detailed explanation of each condition and comments can be found in Appendix C. Recommendations stemming from the identified Non Compliances are listed in Section 5.0.

**Table 5 Identified Non Compliance against Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning (2006) due to documents not able to be provided**

| Reference                              | Commitment  | Audit-Finding   |
|--|---|---|
| Structural Adequacy                    | Macquarie Generation will ensure that all new buildings and structures, and any alterations and additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the Building Code of Australia.<br>Notes:<br>• Under Part 4A of the EP&A Act, Macquarie Generation will be required to obtain construction and occupation certificates for the proposed building works.<br>• Part 8 of the EP&A Regulation sets out the requirements for the certification of development.<br>• The development is located in the Muswellbrook Mine Subsidence District. Under section 15 of the Mine Subsidence Compensation Act 1961, Macquarie Generation is required to obtain the Mine Subsidence Board's approval before constructing or relocating any improvements in a Mine Subsidence District. | Occupation and Construction Certificates could not be provided to the audit team.<br>Approval from the Mine Subsidence Board unable to be provided. |
| Table 10 – Air Quality                 | Visually monitor work zones to ensure that excessive dust is not being produced.  | Monitoring/inspection reports were not provided to the audit team   |
| Table 10 – Air Quality                 | Inspect sites to ensure that adequate dust controls are being used such as regularly watering soil stockpiles.  | Monitoring/inspection reports were not provided to the audit team   |
| Table 10 – Surface Water               | Inspect the site prior to the commencement of each stage of works, to ensure the necessary erosion and sediment control measures are in place.  | Monitoring/inspection reports were not provided to the audit team   |
| Table 10 – Surface Water               | Monitor level of brine in decant basin in accordance with Dam Safety Committee requirements.  | Monitoring reports were not provided to the audit team  |
| Table 10 – Landform, Geology and Soils | Monitor the condition of areas affected by construction activities  | Monitoring/inspection reports were not provided to the audit team   |
| Table 10 – Landform, Geology and Soils | Inspect disturbed areas that have the potential for wind and water erosion to confirm stability of prepared construction sites.   | Monitoring reports were unable to be provided to the audit team   |
| Table 10 – Hazard and Risk             | Bunds will be inspected to ensure they comply with the appropriate standards.   | Inspection reports were unable to be provided to the audit team   |
| Table 10 – Traffic Management          | Visual inspection of construction zones to ensure construction vehicles are using defined roads and access points.  | Vehicle inspection checklists were unable to be provided to the audit team  |

## 4.0 Review of Environmental Management of the Project

### 4.1 Environmental Management (including environmental impact mitigation works)

This Section addresses Schedule 2 Condition 3.2(d) of the *Project Approval 06\_0047 (as modified)*, which requires the IEA to *review the effectiveness of the environmental management of the project, including any environmental impact mitigation works*.

#### 4.1.1 Environmental Management System

MacGen has in place an ISO 14001 certified Environmental Management System (EMS) which relies upon an overriding Environmental Management Strategy, a series of management plans and monitoring programs. The EMS forms the basis of the environmental management at the site.

Environmental management of the operation of the upgraded WTP was directed by MacGen's EMS. The EMS would cover the operation of the WTP following the proposed upgrade.

The MacGen EMS was developed to minimise environmental impacts by providing the strategic context for environmental management across the Bayswater and Liddell Power Stations.

The objectives of the EMS are to:

1. Provide overall framework for environmental management at MacGen utilising the principles of ISO 14001;
2. Utilise operating practices which seek to prevent pollution and minimise environmental impacts in a commercially effective way by:
  - a. efficient use of energy and resources with a view to reducing consumption and minimising emissions or discharges to the environment;
  - b. waste management practices that include waste minimisation, recycling and approved waste handling and disposal; and
  - c. regular environmental assessment of the impact of existing operations.
3. Implement environmental incident response procedures for emergencies or other events which pose a risk to health, safety or the environment; and
4. Facilitate communication within the organisation as well as consultation with governments, contractors, industry groups and the public on matters relating to the environment.

#### 4.1.2 Environmental Management Plans

The Site Specific Environmental Management Plan (EMP) sets out how Veolia Water Solutions and Technologies (Australia) Pty Ltd (VWS), the Principal Contractor, would manage and protect the environment from potential impacts associated with activities included in the Bayswater Power Station Water Treatment Plant Project.

During the construction phase of the project, environmental management was detailed within the Construction Environmental Management Plan (CEMP). The CEMP is a procedural document that outlines the environmental goals of the project, the safeguard measures to be implemented, the timing of the implementation in relation to the progress of the project, responsibilities for implementation and management, and a review process.

The audit team reviewed the CEMP as part of the audit. As required by *Project Approval 06\_0047 (as modified)* Condition 5.2, the CEMP is to contain a Construction and Demolition Safety Study and an Erosion and Sedimentation Management Plan. The Construction and Demolition Safety Study was provided to the audit team and complied with the condition 5.2(a). MacGen was unable to provide an Erosion and Sedimentation Management Plan to the audit team. Evidence that a plan existed was identified however the plan itself was unable to be provided.

Given the information received, the CEMP appears to be in accordance with the requirements outlined in condition 5.1 of *Project Approval 06\_0047 (as modified)*. However the information provided to the audit team by MacGen could not verify compliance of implementation.

Refer to Appendix B for further details on the compliance status of Environmental Management conditions.

#### 4.1.3 Environmental Impact Mitigation Works

The Compilation of Mitigation Measures outlined for the project is provided as attachment 2 to the site specific EMP.

MacGen did not discharge water from the site during construction. Water quality monitoring conducted under the Site Water Management Plan is adequate to assess water quality management on the site and in the surrounding natural waterways. The water quality monitoring has demonstrated the water quality in the Hunter River has not been affected by the WTP Upgrade

The erosion and sediment controls in place during construction of the WTP upgrade provided for the collation of surface runoff waters. Water runoff from the disturbed areas of the project site was retained to provide protection of water quality around the area. Plant stormwater drains discharging to Lake Liddell were sandbagged.

This audit was conducted post construction of the Water Treatment Plant Upgrade. As such, there were difficulties in determining the level of environmental management employed during construction. In addition with this, the lack of evidence provided by MacGen to the audit team created difficulties in verifying MacGen compliance.

#### 4.2 Environmental Performance of Remediation Works

This Section addresses Schedule 2 Condition 3.2(e) of the *Project Approval 06\_0047 (as modified)*, which requires the IEA to assess *the environmental performance of any remediation work of the existing seepage from the existing brine concentrator decant basin to the groundwater system.*

A Contaminated Ground Water Report (CGWP) was developed as part of the project. The CGWP specifies what works MacGen will undertake to prevent, contain and remediate saline seepage from the Brine Concentrator Decant Basin. At the time of the audit there was evidence that this report had been developed however the actual report and subsequent correspondence to the Director-General could not be provided to the audit team.

Assessment of the environmental performance of remediation works was therefore difficult. The audit team was unable to view any evidence of remediation works of the existing seepage from the existing brine concentrator decant basin to the groundwater system.

## 5.0 Recommendations

This section provides recommendations for measures or actions to improve the environmental performance of MacGen's Bayswater Power Station WTP, including recommending measures or actions to:

- Improve the environmental performance of the WTP; and
- Update and/or revise any strategy, plan or program assessed during the audit.

The audit team received complete cooperation from the environmental and operations personnel involved in the audit. Issues identified during the audit predominately related to the lack of evidence available for the audit team to review. Since the time construction concluded, to the time this audit was carried out a lot of organisational changes occurred within MacGen. These changes have resulted in unsatisfactory record keeping of environmental information. In many cases during the audit it was apparent that MacGen had originally satisfied their regulatory responsibilities outlined under *Project Approval 06\_0047 (as modified)*, however evidence to verify compliance at the time of the audit was unable to be obtained.

Table 6 presents key recommendations stemming from this IEA. MacGen should work to resolve the Non Compliance's identified as far as is practical. Table 6 is intended to provide guidance for MacGen in resolving these non compliances as outlined in Condition 3.2 of *Project Approval 06\_0047 (as modified)*.

**Table 6 Consolidated Audit recommendations**

| Reference   | Recommendation |
|---|----------------|
| <b>Other</b>  |                |
| Many documents were unable to be provided to the audit team, resulting in non compliances that may have been avoidable. For example groundwater bore licenses were not able to be found. AECOM suggest that MacGen perform a review of their document management system structure and re-establish a reference system for reports, monitoring data and any other documents that may be called upon in the instance of an audit or by a regulatory department. |                |

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## Appendix A

# Audit Site Meeting Agenda

## Appendix A    Audit Site Meeting Agenda

## Agenda of Meeting

Macquarie Generation - Bayswater Power Station Water Management Plant  
Upgrade (DA 06/0047)

|              |   |      |                           |
|--------------|---|------|---------------------------|
| Subject      | Independent Environmental Audit - Audit Interview and Site Inspection   | Page | 1                         |
| Venue        | Bayswater Power Station   | Time | 8:00 - 16:30              |
| Participants | Macquarie Generation – Kieran Scott (Acting Environment Manager), Kathryn Yates (Environment Officer), Chris Rooney – (Professional Officer), Paul Coffey (Veolia Site Manager)<br>AECOM – Peter Horn (Lead Auditor), Kate Michelmore (Assistant Auditor) |      |                           |
| Apologies    |   |      |                           |
| File/Ref No. | 60220229  | Date | Tuesday 11 September 2012 |
| Distribution | As above  |      |                           |

| No | Item  | Time | Participants   |
|----|---|------|--|
| 1  | Administration  | 8:00 |  |
| 2  | Opening Meeting <ul style="list-style-type: none"><li>• Introductions &amp; Audit Purpose</li><li>• Confidentiality &amp; Process</li><li>• Overview of Water management Plant Upgrade project</li></ul>  | 8:15 | Peter Horn<br><br>Kieran Scott   |
| 3  | Project Approval <ul style="list-style-type: none"><li>• Specific Environmental Conditions<ul style="list-style-type: none"><li>○ Air quality impacts</li><li>○ Water management</li><li>○ Waste management</li><li>○ Hazards and risks</li><li>○ Aboriginal cultural heritage</li></ul></li><li>• Environmental Monitoring and Auditing including:<ul style="list-style-type: none"><li>○ Water monitoring</li></ul></li><li>• Community information, consultation and involvement</li><li>• Environmental Management, including<ul style="list-style-type: none"><li>○ Construction Environmental Management Plan</li></ul></li></ul> | 8:30 | Kieran Scott<br>Kathryn Yates<br><br>Representatives from:<br>*Community relations<br>*Land Management<br>*Construction / project management |

| No | Item   | Time    | Participants  |
|----|--|---------|---|
|    | <ul style="list-style-type: none"> <li>• Environmental reporting <ul style="list-style-type: none"> <li>○ Incident reporting</li> </ul> </li> </ul>  |         |   |
|    | LUNCH  | 12:00   |   |
| 4  | Statement of Commitments <ul style="list-style-type: none"> <li>• Structural adequacy</li> <li>• Demolition</li> <li>• Operation of plant and equipment</li> <li>• Waste management</li> <li>• Water and soils</li> <li>• Hazards and risks</li> <li>• Air quality</li> <li>• Indigenous heritage</li> <li>• Environmental management</li> </ul> | 12:30   | Kathryn Yates<br>Chris Rooney<br><br>Representatives from:<br>*Health and safety<br>*Land Management<br>*Construction / project management<br>*WMP operations |
| 5  | Site tour  | 14:00pm | All   |
| 6  | Closeout meeting   | 16:00pm | Peter Horn  |
| 7  | Audit close  | 16:30pm |   |

## Appendix B

# Audit Protocol - *Project Approval 06\_0047 (as modified)*

## Appendix B     *Audit Protocol - Project Approval 06\_0047 (as modified)*

| PA Cond. No                      | Condition  | Evidence / Comment  | Audit Finding                                  |
|----------------------------------|--|---|--|
| <b>ADMINISTRATIVE CONDITIONS</b> |  |   |  |
| <b>Terms of Approval</b>         |  |   |  |
| 1.1                              | The Proponent shall carry out the Project generally in accordance with the:<br>- Major Projects Application 06_0047<br>- Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning, prepared by HLA Envirosciences Pty Ltd and dated February 2006<br>- the conditions of this consent. | This Audit has covered assessment of the compliance against following documents:<br>- Macquarie Generation Hunter River Pump Station Augmentation, Environmental Assessment – Statement of Commitments (SoC); and<br>- this Project Approval (PA)<br>Assessment of compliance against SoC is given in the Appendix B. | Complies                                       |
| 1.2                              | If there is any inconsistency between the above, the conditions of this approval shall prevail to the extent of the inconsistency.   | Assessment of compliance against PA is given in sections below.   |  |
| 1.3                              | The Proponent shall comply with any reasonable requirement(s) of the Director-General arising from the Department's assessment of:<br>- any reports, plans or correspondence that are submitted in accordance with this approval<br>- the implementation of any actions or measures contained in these reports, plans or correspondence.   | MacGen were not aware of any assessments conducted by the Department.   | Not Triggered                                  |
| 1.4                              | The Proponent shall, upon selection of the preferred option for water treatment (as outlined in Section 6.3.2 of the EA), submit a report to the Director-General which will:  | Letter to mine subsidence board from MacGen provided (date received 26 Oct 2007), requesting boards comments on WTP upgrade. Response to be submitted to DoP. Reference to report has been found however actual report could not be provided  | Not Compliant - Evidence unable to be provided |
|                                  | a) provide detailed design information for the selected option;  | Reference to report has been found however actual report could not be provided  | Not Compliant - Evidence unable to be provided |
|                                  | b) demonstrate that the selected option is consistent with the envelope described in the <i>Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning</i> , prepared by HLA Envirosciences Pty Ltd and dated February 2006  | Reference to report has been found however actual report could not be provided  | Not Compliant - Evidence unable to be provided |
|                                  | c) demonstrate that the selected option complies with the design requirements of the Mine Subsidence Board   | Reference to report has been found however actual report could not be provided  | Not Compliant - Evidence unable to be provided |
|                                  | d) outline steps taken to determine the viability of designing the WTP upgrade such that the WTP could receive saline water from adjacent mines.   | Reference to report has been found however actual report could not be provided  | Not Compliant - Evidence unable to be provided |
| <b>Limits of Approval</b>        |  |   |  |
| 1.5                              | This approval shall lapse five years after the date on which it is granted, unless the works' subject of this  |   |  |

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|  | approval is physically and substantially commenced on or before that time.  |  | Noted  |
| <b>Statutory Requirements</b>            |   |  |  |
| 1.6                                      | The Proponent shall ensure that all licences, permits and approvals are obtained and maintained as required throughout the life of the project. No condition of this consent removes the obligation for the Proponent to obtain, renew or comply with such licences, permits or approvals. The Proponent shall ensure that a copy of this consent and all relevant environmental approvals are available on the site at all times during the project.   | Licences and approvals are available on MacGen Intranet. Sampled by audit team and approved in audit interview   | Complies                                       |
| <b>Compliance</b>                        |   |  |  |
| 1.7                                      | The Proponent shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities   | General induction sighted during audit interview. Verified during audit interview  | Complies                                       |
| 1.8                                      | The Proponent shall be responsible for the environmental impacts resulting from the actions of all persons on site, including contractors, sub-contractors and visitors.  |  | Noted  |
| 1.9                                      | Prior to each of the events listed below, the Proponent shall certify in writing to the satisfaction of the Director-General that it has complied with all conditions of this approval applicable prior to that event.  |  |  |
|  | a) commencement of any construction works on the land subject of this approval;   | Approval from DG - Letter dated 16 January 2007 sighted during audit interview.  | Complies                                       |
|  | b) commencement of operation of the project.  | Approval from the DG was unable to be provided to the audit team   | Not Compliant - Evidence unable to be provided |
| 1.10                                     | Notwithstanding condition 1.9 of this consent, the Director-General may require an update report on compliance with all, or an part, of the conditions of this consent. Any Such update shall meet the requirements of the Director-General and be submitted within such period as the Director-General may agree.  | Evident was unable to be provided to the audit team. MacGen commented that the department had not requested an updated report on compliance of the conditions of this consent.                                 | Not Triggered                                  |
| 1.11                                     | The Proponent shall meet the requirements of the Director-General in respect of the conditions of this consent, and general consistency with the documents listed under condition 1.1 of this consent. The Director-General may direct that such a measure be implemented in response to the information contained within any report, plan, correspondence or other document submitted in accordance with the conditions of this consent, within such time as the Director-General may agree. | DG requested clarification relating to condition 5.2. Mac Gen resubmitted OHS plan to DG. DG approved plan and were satisfied that the requirements of the condition was being met (letter dated 16 Jan 2007). | Complies                                       |
| <b>SPECIFIC ENVIRONMENTAL CONDITIONS</b> |   |  |  |
| <b>Air Quality Impacts</b>               |   |  |  |
| 2.1                                      | The Proponent shall construct the project in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust. All activities on the site shall be undertaken with the objective of  | Environmental Management Plan lists the air quality mitigation measures in place during  |  |

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|  | preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease  | construction.<br>EMP appears to be adequate for controlling dust during construction - Audit team did not receive evidence of air quality related non compliances.<br>Audit team was unable to verify if work was conducted in accordance with site specific EMP, or inspect the works for compliance. | Not able to be verified                        |
| <b>Water Cycle Management</b>          |  |  |  |
| 2.2                                    | Except as may be expressively provided by an Environment Protection Licence for the project, the Proponent shall comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i> which prohibits the pollution of waters.  | Noted  | Noted  |
| 2.3                                    | The Proponent shall prepare a Contaminated Ground Water Report specifying the works that will be undertaken by the Proponent to prevent, contain and remediate saline seepage from the Brine Concentrator Decant Basin. The report shall contain a proposed timeframe for the implementation of all works and measures proposed. The report shall be submitted to the DEC and the DNR by 15 August 2006, or within such timeframe as may otherwise be agreed by the DEC and the DNR. | Submission letters to DEC and DNR were unable to be provided to the audit team   | Not Compliant - Evidence unable to be provided |
| 2.4                                    | Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities, in accordance with Landcom's <i>Managing Urban Stormwater Soils and Conservation</i> .   | Audit team provided with site specific EMP. Soil and water management measures detailed in the plan. Photos during construction were sighted showing erosion measures in place.  | Complies                                       |
| <b>Waste Generation and Management</b> |  |  |  |
| 2.5                                    | All waste materials removed from the site shall only be directed to a waste management facility lawfully permitted to accept the materials.  | Waste tracking results were unable to be provided to the audit team  | Not Compliant - Evidence unable to be provided |
| 2.6                                    | The Proponent shall maximise the treatment, reuse and/ or recycling on the site of any waste oils, excavated soils, slurries, dusts and sludges associated with the Project, to minimise the need for treatment or disposal of those materials outside the power station. Note that this condition does not allow the use of any of the materials listed above as potential fuel sources.  | verified in EMP and site inspection  | Complies                                       |
| 2.7                                    | The Proponent shall manage any asbestos or asbestos-contaminated materials that may be uncovered during the construction, commissioning and operation of the project strictly in accordance with the requirements under <i>Protection of the Environment Operations (Waste) Regulation 2005</i> and any guidelines or requirements issued by the EPA in relation to those materials.   | Asbestos register sighted on site. Incidents register was unable to be provided to the audit team for verification if asbestos was uncovered during construction.  | Not able to be verified                        |
| 2.8                                    | The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the <i>Protection of the Environment Operations Act 1997</i> , if such a licence is required in relation to that waste.   | EMP provided to audit team. Audit interview revealed that waste was not generated outside of the site, this was verified in management plans, past photos and site inspection.   | Complies                                       |

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| 2.9  | The Proponent shall ensure that all liquid and/or non-liquid waste generated and/or stored on the site is assessed and classified in accordance with <i>Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes</i> (DECC, 2004), or any future guideline that may supersede that document.   | KY states that to her knowledge there have been no events that have required classification of waste.   | Not Triggered |
| <b>Hazards and Risk</b>                      |   |   |               |
| 2.1  | The Proponent shall demolish all relevant structures strictly in accordance with <i>Australian Standard 2601-1991: The Demolition of Structures</i> , as in force at 1 July 1993.   | No Demolition took place  | Not Triggered |
| 2.11   | The Proponent shall store and handle all dangerous goods, as defined by the Australian Dangerous Goods Code, strictly in accordance with:   | Dangerous goods viewed during the site inspection were stored and handled in accordance with ADG code   | Complies      |
|  | a) all relevant Australian Standards  | Dangerous goods viewed during the site inspection were stored and handled in accordance with ADG code. Hazardous chemicals on site were stored in accordance with the appropriate Australian standard | Complies      |
|  | b) a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund  | Verified during site inspection. Bunding was adequate to contain more than the required amount.   | Complies      |
|  | c) the EPA's Environment Protection Manual Technical Bulletin Bunding and Spill Management.   | Verified during site inspection   | Complies      |
|  | In the event of an inconsistency between the requirements listed from a) to c) above, the most stringent requirement shall prevail to the extent of the inconsistency.  | Verified during site inspection   | Complies      |
| <b>Aboriginal Cultural Heritage</b>          |   |   |               |
| 2.12   | In the event that an Aboriginal object is identified during construction of the project, the Proponent shall adopt management strategies to ensure that such Aboriginal objects are subjected to partial or nil impact. The Proponent shall ensure that the cultural heritage management strategies are developed in conjunction with the Aboriginal community. Note that the Proponent is not required to obtain consent to destroy pursuant to section 90 of the <i>National Parks and Wildlife Act 1974</i> . this requirement is not applicable to this project under section 75U(1)(d) of the Act. | No Aboriginal Cultural items were identified during construction  | Not Triggered |
| <b>ENVIRONMENTAL MONITORING AND AUDITING</b> |   |   |               |
| <b>Water Monitoring</b>                      |   |   |               |
| 3.1  | Prior to the commencement of the project, the Proponent shall prepare and implement a Water Monitoring Program. The program shall reflect the initiatives described in section 9.4 of the <i>Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning</i> , dated February 2006 and prepared by HLA Envirosciences Pty Ltd. The program shall address the requirements of the DEC and DNR and shall include but not necessarily be limited to:  | No Water Monitoring Program was in place at the time of the audit. 3.1 (a,b,c,d) are compliant however this condition is not compliant due to the lack of monitoring program.                         | Not Compliant |
|  | a) water balance monitoring of the site;  | viewed water balance - contained within annual water licence report   | Complies      |
|  | b) surface and groundwater quality monitoring including the identification of monitoring locations, frequency and parameters;   | viewed surface and groundwater quality monitoring results   | Complies      |

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|  | c) the creation of procedures for the management and optimisation of water use across the site; and  | Sighted in report (2000), Water Efficiency Management Plan - not dated, requires updating  | Complies                                       |
|  | d) optimisation of the project to reflect best environmental practice with respect to water quality.   | MacGen practices best practice with regards to water quality.<br>Water licence report sighted - Out-dated documents need to be updated | Complies                                       |
|  | In the event that monitoring bores were to be established as part of the groundwater monitoring program, approval under Part 5 of the <i>Water Act 1912</i> would be required.   | Monitoring bores are in place at MacGen. Part 5 licence unable to be provided to audit team.   | Not Compliant - Evidence unable to be provided |
| <b>Environmental Auditing</b>                              |  |  |  |
| 3.2  | Twelve months after the commencement of operation of the project, or within such period as otherwise agreed by the Director-General, the Proponent shall commission an independent person or team to undertake an Environmental Compliance audit of the project. The independent person or team shall be approved by the Director-General prior to the commencement of the Audit shall be submitted for the approval of the Director-General no later than one month after the completion of the Audit. The Audit shall: | Audit has occurred outside of time frame indicated   | Not Compliant                                  |
|  | a) be carried out in accordance with <i>ISO 14010 - Guidelines and General Principles for Environmental Auditing</i> and <i>ISO 14011 - Procedures for Environmental Auditing</i>  | This audit   | Complies                                       |
|  | b) assess compliance with the requirements of this approval, and other licences and approvals that apply to the project  | Audit report - Section 3.0   | Complies                                       |
|  | c) assess the environmental performance of the project against the predictions made and conclusions drawn in the documents referred to under condition 1.1, and of this approval   | Audit report - Section 4.0   | Complies                                       |
|  | d) review the effectiveness of the environmental management of the project, including any environmental impact mitigation works  | Audit Report - Section 4.0   | Complies                                       |
|  | e) assess the environmental performance of any remediation work of the existing seepage from the existing brine concentrator decant basin to the groundwater system.   | Audit Report - Section 4.0   | Complies                                       |
|  | The Director-General may require the Proponent to undertake works to address the findings or recommendations presented in the Environmental Audit Report. Any such works shall be completed within such time as the Director-General may agree. The Environmental Audit Report shall be made available for public inspection on request.   | Audit Report - Section 5.0   | Complies                                       |
| <b>COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT</b> |  |  |  |
| 4.1  | Subject to confidentiality, the Proponent shall make all documents required under this approval available for public inspection on request.  | Current Environmental Manager has no recollection of anyone requesting information   | Not Triggered                                  |
| <b>Complaints Procedure</b>                                |  |  |  |

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| 4.2                             | Prior to the commencement of construction of the Project, the Proponent shall ensure that the following are available for community complaints for the life of the project (including construction and operation):   |  |  |
|                                 | a) a telephone number on which complaints about construction and operational activities at the site may be registered  | Inquires line on Mac Gen information   | Complies                                       |
|                                 | b) a postal address to which written complaints may be sent  | Not online at the time of the audit, however Mac Gen have since uploaded postal address to website   | Not Compliant                                  |
|                                 | c) an email address to which electronic complaints may be transmitted.   | Email address online   | Complies                                       |
|                                 | The telephone number, the postal address and the email address shall be displayed on the Proponent's website and on a sign near the site, in a position that is clearly visible to the public, and which clearly indicates the purposes of the sign.   | No sign was in place at the time of the audit  | Not Compliant                                  |
| 4.3                             | The Proponent shall record details of all complaints received through the means listed under Condition 4.2 of this approval in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to:  | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | a) the date and time, where relevant, of the complaint   | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | b) the means by which the complaint was made (telephone, mail or email)  | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect   | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | d) the nature of the complaint   | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | e) any action(s) taken by the Proponent in relation to the complaint, including any follow-up contact with the complainant and   | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | f) if no action was taken by the Proponent in relation to the complaint, the reason(s) why no action was taken.  | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
|                                 | The Complaints Register shall be made available for inspection by the Director-General upon request.   | Details of complaints received during the audit period could not be obtained.  | Not Compliant - Evidence unable to be provided |
| <b>ENVIRONMENTAL MANAGEMENT</b> |  |  |  |
|                                 | <b>Environmental Representative</b>  |  |  |
|                                 | <b>Construction Environmental Management Plan</b>  |  |  |
| 5.1                             | Prior to the commencement of construction of the Project, the Proponent shall prepare and implement a <b>Construction Environmental Management Plan</b> to outline environmental management practices and procedures to be followed during the construction of the Project. The Plan shall be prepared in accordance with <i>Guideline for the Preparation of Environmental Management Plans</i> (DIPNR 2004) and shall be consistent with the framework presented in Chapter 9 of the <i>Environmental Assessment, Proposed Bayswater Power Station Upgrade, Submission to NSW Department of Planning</i> , dated February 2006 and prepared by HLA Envirosciences Pty Ltd. | CEMP was prepared, given the information received the CEMP appears to be in accordance with the required documents. However not enough information was provided for the audit team to verify implementation. | Not able to be verified                        |
| 5.2                             | As part of the Construction Environmental Management Plan for the project, required under section 5.1 of this consent, the Proponent shall prepare and implement the following management plans:   |  |  |

|                                |  |  |  |
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|                                | a) a Construction and Demolition Safety Study for the project, prepared in accordance with the Department's <i>Hazard Industry Planning Advisory Paper No. 7 - Construction Safety Study Guidelines</i> . The study shall specifically identify and address potential hazards associated with the project and its interaction with the other parts of the Power Station while works permitted under this consent are undertaken. | Letter to DPI sighted during audit interview requesting approval of site specific OHS plan. DPI letter dated 16 Jan 2007, stated that the GPI is satisfied that the condition is being met.  | Complies                                       |
|                                | b) an <b>Erosion and Sedimentation Management Plan</b> to detail measures to minimise erosion during site preparation, construction and demolition works associated with the project. The Plan shall include, but not necessarily be limited to:   | Evidence of this plan was sighted however actual plan was unable to be provided to the audit team  | Not Compliant - Evidence unable to be provided |
|                                | i ) results of investigations into soils associated with the site, in particular the stability of the soil and its susceptibility to erosion   | Evidence of this plan was sighted however actual plan was unable to be provided to the audit team. Verification of ESMP could not be verified  | Not Compliant - Evidence unable to be provided |
|                                | ii) details of erosion, sediment and pollution control measures and practices to be implemented during construction of the project, with specific measures outlined for minimising bank sedimentation and erosion  |  | Not Compliant - Evidence unable to be provided |
|                                | iii) demonstration that erosion and sediment control measures will conform with, or exceed, the relevant requirements of the Regional Erosion and Sediment Control Policy and Code of Practice adopted by Council  |  | Not Compliant - Evidence unable to be provided |
|                                | iv) design specifications for diversionary works, banks and sediment basins  |  | Not Compliant - Evidence unable to be provided |
|                                | v) an erosion monitoring program during construction and demolition works associated with the project  |  | Not Compliant - Evidence unable to be provided |
|                                | vi) measures to address erosion, should it occur, and to rehabilitate/stabilize disturbed areas of the site.   |  | Not Compliant - Evidence unable to be provided |
| <b>ENVIRONMENTAL REPORTING</b> |  |  |  |
|                                | <b>Incident Reporting</b>  |  |  |
| 6.1                            | The Proponent shall notify the Director-General of any incident with actual or potential significant off-site impacts on people or the biophysical environment within 12 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director-General within seven days of the date on which the incident occurred.   | The audit team witnessed individual incident forms during the audit interview. It was evident that employees at MacGen have a high understanding of the incident reporting process however the incident register could not be provided for comprehensive review. | Not Compliant - Evidence unable to be provided |
| 6.2                            | The Proponent shall meet the requirements of the Director-General to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition 6.1 of this approval, within such period as the Director-General may require.  |  | Not Compliant - Evidence unable to be provided |

## Appendix C

# Audit Protocol - Environmental Assessment (2006)

## Appendix C    Audit Protocol - Environmental Assessment (2006)

| Statement of Commitment   | Evidence / Comment  | Audit Finding                                  |
|---|---|--|
| <b>GENERAL</b>  |   |  |
| Macquarie Generation will carry out the development generally in accordance with the:   |   |  |
| (a) Project Application;  | Not able to verify as access to documents was not available.  | Not able to be verified                        |
| (b) Environmental Assessment for the Proposed Bayswater Power Station Upgrade prepared by HLA-Envirosciences; and   | Not able to verify as access to documents was not available.  | Not able to be verified                        |
| (c) Statement of Environmental Commitment.  | Not able to verify as access to documents was not available.  | Not able to be verified                        |
| <b>STRUCTURAL ADEQUACY</b>  |   |  |
| Macquarie Generation will ensure that all new buildings and structures, and any alterations and additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the Building Code of Australia.<br>Notes:<br>• Under Part 4A of the EP&A Act, Macquarie Generation will be required to obtain construction and occupation certificates for the proposed building works.<br>• Part 8 of the EP&A Regulation sets out the requirements for the certification of development.<br>• The development is located in the Muswellbrook Mine Subsidence District. Under section 15 of the Mine Subsidence Compensation Act 1961, Macquarie Generation is required to obtain the Mine Subsidence Board's approval before constructing or relocating any improvements in a Mine Subsidence District. | Occupation and Construction Certificates could not be provided to the audit team.<br>Approval from the Mine Subsidence Board unable to be provided.                         | Not Compliant - Evidence unable to be provided |
| <b>DEMOLITION</b>   |   |  |
| Macquarie Generation will ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.  | MacGen Comment - No demolition took place during construction   | Not Triggered                                  |
| <b>OPERATION OF PLANT AND EQUIPMENT</b>   |   |  |
| Macquarie Generation will ensure that all plant and equipment used at the site is:<br>(a) Maintained in a proper and efficient condition; and<br>(b) Operated in a proper and efficient manner.   | Equipment is operated and maintained as per the MacGen Maintenance Schedule. Maintenance Schedule was provided to the audit team and verified compliance for this condition | Complies                                       |
| <b>WASTE MANAGEMENT</b>   |   |  |
| Except as provided for by the conditions of an Environment Protection Licence, only the hazardous and/or industrial and/or group A and/or group B wastes listed below may be treated, processed, reprocessed or disposed of at the premises.  | production of Brime, reverse osmosis to produce saline biproduct is only waste treated.   | Complies                                       |
| a) Acid solutions or acids in solid form,   |   | Complies                                       |
| b) Asbestos,  |   | Complies                                       |
| c) Fly ash and Bottom Ash   |   | Complies                                       |

|   |   |   |
|---|---|---|
| d) Waste mineral oils unfit for their original use, and   |   | <b>Complies</b>                                       |
| e) Waste oil/water hydrocarbon/water mixtures or emulsions,   |   | <b>Complies</b>                                       |
| f) Boiler cleaning residues.  |   | <b>Complies</b>                                       |
| g) Filter bags  |   | <b>Complies</b>                                       |
| h) Water treatment residues   |   | <b>Complies</b>                                       |
| <b>WATER AND SOILS</b>  |   |   |
| <p>As part of the detailed design of the proposed improvement works, Macquarie Generation will undertake a hydrological study of the site in order to ensure that the proposed works do not significantly alter site hydrology or the local flooding regime. These details will be submitted to the Director-General's satisfaction. Except as may be expressly provided by an Environment Protection Licence, Macquarie Generation will comply with Section 120 of the Protection of the Environment Operations Act 1997 during the carrying out of the development.</p> <p>Prior to carrying out any development, Macquarie Generation will prepare, and then subsequently implement, an Erosion and Sediment Control Plan for the development, to the satisfaction of the Director-General. This plan must include an Erosion and Sediment Control Plan that:</p> <ul style="list-style-type: none"> <li>- is consistent with the requirements of Landcom's Managing Urban Stormwater: Soils and Construction manual;</li> <li>- identifies activities that could cause soil erosion and generate sediment;</li> <li>- describes the location, function and capacity of erosion and sediment control structures; and</li> <li>- describes measures to minimise soil erosion and the potential for the migration of sediments to downstream waters.</li> </ul> <p>Macquarie Generation will take all practicable measures to minimise erosion and the potential discharge of sediments from the site.</p> | <p>The audit team was informed that a hydrological study of the site was conducted. At the time of the audit the hydrological study, and DG approval could not be provided to the audit team.</p> | <p>Not Compliant - Evidence unable to be provided</p> |
| <b>HAZARDS AND RISK</b>   |   |   |
| Macquarie Generation will undertake all works associated with the construction works and operation of the WTP in accordance their Occupational Health and Safety Management system.   | site inspection verified continued compliance   | <b>Complies</b>                                       |
| <b>AIR QUALITY</b>  |   |   |
| Macquarie Generation will use all practicable measures to minimise air pollutant emissions from the development.  | Environmental Management Plan lists the air quality mitigation measures in place during construction.   | <p>Not able to be verified</p>                        |

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|--|--|---------------|
| <b>INDIGENOUS HERITAGE</b>   |  |               |
| In the event that an Aboriginal site or object is discovered during the carrying out of the development, Macquarie Generation will cease work immediately and make contact with the Department of Environment and Conservation.<br>Macquarie Generation will obtain section 90 consents under the National Parks and Wildlife Act 1974 prior to destroying any Aboriginal sites or objects found during the carrying out of the development. | MacGen Comment - No Aboriginal site or objects were discovered during the development  | Not Triggered |
| <b>ENVIRONMENTAL MANAGEMENT</b>  |  |               |
| Environmental management during the construction phase of the proposed project would be directed by a Construction Environmental Management Plan (CEMP), to be produced prior to commencement of construction of the proposed project.   | The CEMP was developed by Macquarie Generation and is an appendix to the Environmental Management Plan developed by veolia water solutions (VWS) | Complies      |
| Environmental management of the operation of the upgraded WTP would be directed by Macquarie Generation's Environmental Management System (EMS), certified to the international standard ISO 14001:2004.   | Audit Report   | Complies      |
| Key components to be included in the CEMP and the EMS would be the environmental safeguards developed for this project as summarised in Table 9, and the monitoring requirements outlined in Table 10.   | Table 9 and 10 provided below  |               |

| Table 9: Proposed Environmental Safeguards       |   |                            |                      | Audit Evidence   | Audit Finding         |
|--|---|----------------------------|----------------------|--|-----------------------|
| Issue  | Environmental Safeguard   | Implementation Stage       | Responsibility       |  |                       |
| <b>Energy Consumption</b>                        |   |                            |                      |  |                       |
| Increased Greenhouse Gas Emissions               | Macquarie Generation would continue to actively meet the targets set in its Greenhouse Challenge Cooperative Agreement with the Commonwealth of Australia.  | Ongoing                    | Macquarie Generation | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition   | Unable to be verified |
|  | Macquarie Generation would also continue to meet the targets set by the Commonwealth Government's Generator Efficiency Standards Program.   | Ongoing                    | Macquarie Generation | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition   | Unable to be verified |
| <b>Waste</b>                                     |   |                            |                      |  |                       |
| EPL Compliance                                   | Only the following hazardous and/or industrial and/or Group A and/or Group B listed below would be treated, processed, reprocessed or disposed of at the premises:<br><ul style="list-style-type: none"> <li>• Acid solutions or acids in solid form;</li> <li>• Asbestos;</li> <li>• Fly Ash and Bottom Ash;</li> <li>• Waste mineral oils unfit for their original use;</li> <li>• Waste oil/water hydrocarbon/water mixtures or emulsions;</li> <li>• Boiler cleaning residues;</li> <li>• Filter bags; and</li> <li>• Waste Treatment Residues</li> </ul> | Construction and Operation | Macquarie Generation | MacGen Comment - Treatment and process was conducted in conjunction with DA conditions. This condition was unable to be provided due to the time frame since construction. | Not triggered         |
| <b>Hydrology, Hydrogeology and Water Quality</b> |   |                            |                      |  |                       |
| Surface Water Management                         | • All water discharges will be monitored and controlled in accordance with relevant licences and legislation  | Construction and Operation | Macquarie Generation | Water Monitoring Report sighted by the audit team  | Complies              |
|  | • Clean water diversion drains would be constructed to divert runoff away from areas to be disturbed;   | Pre-construction           | Contractor           | Clean water diversion drains sighted during audit inspection   | Complies              |
|  | • Straw bales/sediment fences will be installed around areas to be disturbed;   | Pre-construction           | Contractor           | Straw bales sighted during site inspection. Photos of construction viewed by audit team showing sediment fences and straw bales in use during construction                 | Complies              |

|                          |   |                  |                                   |  |                       |
|--------------------------|---|------------------|-----------------------------------|--|-----------------------|
|                          | <ul style="list-style-type: none"> <li>• Land disturbance would be confined to minimum workable areas;</li> </ul>   | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
|                          | <ul style="list-style-type: none"> <li>• Excavation works would be suspended during heavy periods of rainfall;</li> </ul>   | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
|                          | <ul style="list-style-type: none"> <li>• Monitoring and maintenance of erosion and sediment control structures would occur throughout the life of the project;</li> </ul>   | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
|                          | <ul style="list-style-type: none"> <li>• Disturbed areas would be watered to control dust during windy and dry weather;</li> </ul>  | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
|                          | <ul style="list-style-type: none"> <li>• The Department of Housing's Managing Urban Stormwater: Soils and Construction, 4th edition (DoH, 2004) (the "blue book") would be adhered to when undertaking erosion and sediment control measures; and</li> </ul>              | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
|                          | <ul style="list-style-type: none"> <li>• Temporary soil and water management structures would be removed only after the disturbed area had been sufficiently stabilised.</li> </ul>   | Construction     | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
| Groundwater Impacts      | Macquarie Generation will discuss methods for the treatment of existing groundwater contamination with the DEC and DoNR and will commit to works in the form of a Pollution Reduction Program attached to EPL779.   | Operation        | Macquarie Generation              | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |
| <b>Hazards and Risks</b> |   |                  |                                   |  |                       |
| Leaks/Spills             | Emergency procedures, including containment and clean up of spills, as well as the notification of these events to Macquarie Generation personnel, would be included in emergency procedures outlined in the CEMP of both the construction contractor and plant operator. | Pre-construction | Contractor / Macquarie Generation | Emergency procedures and risk assessment outlined in the CEMP (provided to the audit team for review)                          | Complies              |

|                    |  |                            |                                   |   |                       |
|--------------------|--|----------------------------|-----------------------------------|---|-----------------------|
|                    | Adequate emergency spill kit equipment would be located on site at all times.  | Construction and Operation | Macquarie Generation              | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition, however emergency spill kits were sighted during audit inspection                   | Unable to be verified |
|                    | Equipment brought onto the site would be required to be in proper working order and maintained in accordance with the manufacturer's specifications.   | Construction and Operation | Contractor / Macquarie Generation | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition  | Unable to be verified |
|                    | Chemical storage areas forming part of the upgraded WTP would have adequate bunding designed in accordance with Australian Standard 1940:2004, and would be managed in accordance with Macquarie Generation's current handling procedures. Regular inspections of chemical storage areas would also be undertaken.   | Operation                  | Macquarie Generation              | Bunding was sighted during site inspection, Bunding was in accordance with AS 1940:2004   | Complies              |
| <b>Noise</b>       |  |                            |                                   |   |                       |
| Construction Noise | All works would be carried out Monday to Friday between 7 am and 6 pm (Except in cases where safety reasons require work outside of these times).  | Construction               | Contractor                        | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition  | Unable to be verified |
| Operation Noise    | All significant noise generating equipment would be enclosed in soundproof barriers.   | Operation                  | Macquarie Generation              | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition  | Unable to be verified |
| <b>Air Quality</b> |  |                            |                                   |   |                       |
| Emissions to Air   | Dust suppression measures to be utilised include:<br>• Land disturbance would be confined to minimum workable areas;<br>• Excavation works would be suspended during periods of strong winds;<br>• Monitoring and maintenance of erosion and sediment control structures would occur throughout the life of the project; and<br>• Disturbed areas would be watered to control dust during windy and dry weather. | Construction               | Contractor                        | Dust suppression mitigation measures were outlined in the CEMP attachment 1. However Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition | Unable to be verified |

|                                  |  |                            |                                   |  |                       |
|----------------------------------|--|----------------------------|-----------------------------------|--|-----------------------|
|                                  | All equipment would be maintained as per the manufacturer's specifications.  | Construction and Operation | Contractor / Macquarie Generation | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition               | Unable to be verified |
| Greenhouse Gas Emissions         | Macquarie Generation would continue to actively meet the targets set in its Greenhouse Challenge Cooperative Agreement with the Commonwealth of Australia.   | Ongoing                    | Macquarie Generation              | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition               | Unable to be verified |
|                                  | Macquarie Generation would also continue to meet the targets set by the Commonwealth Government's Generator Efficiency Standards Program.  | Ongoing                    | Macquarie Generation              | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition               | Unable to be verified |
| <b>Heritage and Archaeology</b>  |  |                            |                                   |  |                       |
| Protection of Aboriginal Objects | Aboriginal objects are protected under the NPW Act (as amended), regardless of location. Should any objects be identified during the course of site works, all works must cease and the DEC (North Eastern Branch, Environment Protection and Regulation Division, Regional Archaeologist) contacted in regard to appropriate permit requirements before any further impact is undertaken. | Construction               | Contractor                        | No Aboriginal objects were uncovered during construction   | Not Triggered         |
|                                  | All works must cease if suspected skeletal material is uncovered during the course of site works, and the DEC, the NSW Police and the NSW Coroners office must be contacted immediately.   | Construction               | Contractor                        | No skeletal remains were uncovered during construction   | Not Triggered         |
| Training                         | All contractors who work on site would be made aware of the NPW Act 1974 (as amended) and the fact that it is an offence to move, disturb or destroy Aboriginal objects without the written permission of the Director General of the DEC during their induction training.   | Construction and Operation | Contractor / Macquarie Generation | This was the case, site inductions included information on indigenous information. No aboriginal objects were uncovered during construction. | Complies              |
| <b>Landform and Soils</b>        |  |                            |                                   |  |                       |
| Erosion and Sedimentation        | • Clean water diversion drains would be constructed to divert runoff away from areas to be disturbed;  | Pre-construction           | Contractor                        | Clean water diversion drains sighted during audit inspection   | Complies              |

|  |  |                               |                       |  |                                       |
|--|--|-------------------------------|-----------------------|--|---------------------------------------|
|  | • Straw bales/sediment fences will be installed around areas to be disturbed;  | Pre-construction              | Contractor            | Straw bales sighted during site inspection. Photos of construction viewed by audit team showing sediment fences and straw bales in use during construction | Complies                              |
|  | • Land disturbance would be confined to minimum workable areas;  | Construction                  | Contractor            | This was the case during construction. Minimum land disturbance occurred   | Complies                              |
|  | • Excavation works would be suspended during heavy periods of rainfall;  | Construction                  | Contractor            | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition                             | Unable to be verified                 |
|  | • Monitoring and maintenance of erosion and sediment control structures would occur throughout the life of the project;  | Construction                  | Contractor            | Monitoring reports were not provided to the audit team   | Not Compliant - Evidence not provided |
|  | • Disturbed areas would be watered to control dust during windy and dry weather;   | Construction                  | Contractor            | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition                             | Unable to be verified                 |
|  | • The Department of Housing's Managing Urban Stormwater: Soils and Construction, 4th edition (DoH, 2004) (the "blue book") would be adhered to when undertaking erosion and sediment control measures; and | Construction                  | Contractor            | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition                             | Unable to be verified                 |
|  | • Temporary soil and water management structures would be removed only after the disturbed area had been sufficiently stabilised.  | Construction                  | Contractor            | Due to time frame from the time of the audit to when construction was occurring the audit team could not verify this condition                             | Unable to be verified                 |
| Table 10: Monitoring requirements  |  |                               |                       |  |                                       |
| <b>Monitoring Requirements</b>   | <b>Frequency</b>   | <b>Parameters</b>             | <b>Implementation</b> |  |                                       |
| <b>Air Quality</b>   |  |                               |                       |  |                                       |
| Visually monitor work zones to ensure that excessive dust is not being produced.                               | Daily  | No visible dust leaving site. | Construction          | Monitoring reports were unable to be provided to the audit team  | Not Compliant - Evidence not provided |
| Inspect sites to ensure that adequate dust controls are being used such as regularly watering soil stockpiles. | Daily  | No visible dust leaving site. | Construction          | Monitoring reports were unable to be provided to the audit team  | Not Compliant - Evidence not provided |

|  |  |   |  |   |                                       |
|--|--|---|--|---|---------------------------------------|
| <b>Surface Water</b>   |  |   |  |   |                                       |
| Inspect the site prior to the commencement of each stage of works, to ensure the necessary erosion and sediment control measures are in place.   | As required                                  | N/A   | Prior to commencement of each stage of works | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| Monitor discharge waters from the cooling towers to Tinkers Creek.   | Daily during discharge                       | Conductivity (µS/cm)  | Ongoing                                      | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| Inspect erosion and sediment controls to ensure they are installed and operating correctly. Corrective action would be instituted if necessary, and follow up inspection would be undertaken to verify outcome of the corrective action. | Weekly and within 24 hours of rainfall event | N/A   | Site preparation and Construction            | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| Monitor level of brine in decant basin in accordance with Dam Safety Committee requirements.   | Weekly                                       | Height  | Ongoing                                      | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| <b>Groundwater</b>   |  |   |  |   |                                       |
| Monitor ground water quality 200m downstream of the decant basin at bore BWGM1/D10.  | Monthly                                      | pH and electrical conductivity  | Ongoing                                      | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| Monitor ground water quality 200m downstream of the decant basin at bore BWGM1/D10.  | Bimonthly                                    | Trace metals (Iron, Copper, Chromium, Manganese, Lead, Aluminium, Zinc, Arsenic, Selenium and Nickel) | Ongoing                                      | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| <b>Landform, Geology and Soils</b>   |  |   |  |   |                                       |
| Monitor the condition of areas affected by construction activities   | Weekly                                       | N/A   | Construction                                 | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| Inspect disturbed areas that have the potential for wind and water erosion to confirm stability of prepared construction sites.  | Weekly                                       | N/A   |  | Monitoring reports were unable to be provided to the audit team | Not Compliant - Evidence not provided |
| <b>Indigenous Heritage</b>   |  |   |  |   |                                       |
| Report any archaeological sites discovered during construction activities to the Regional Archaeologist of DEC. Cease works pending consideration.   | As necessary                                 | N/A   | Site preparation and Construction            | no archaeological sites were discovered during construction     | Not Triggered                         |

|  |         |        |                                     |  |                                       |
|--|---------|--------|-------------------------------------|--|---------------------------------------|
| <b>Hazard and Risk</b>   |         |        |                                     |  |                                       |
| Bunds will be inspected to ensure they comply with the appropriate standards.                                      | One off | AS1940 | Prior to commencement of operations | inspection reports were unable to be provided to the audit team            | Not Compliant - Evidence not provided |
| <b>Traffic Management</b>  |         |        |                                     |  |                                       |
| Visual inspection of construction zones to ensure construction vehicles are using defined roads and access points. | Weekly  | N/A    | Site preparation and Construction   | Vehicle inspection checklists were unable to be provided to the audit team | Not Compliant - Evidence not provided |