

South West Cogeneration Joint Venture

**Electricity Generation Licence
(EGL9)**

**2013 Asset Management System
Review**

November 2013

Mr Andy Wearmouth
Facility Manager
South West Cogeneration Joint Venture
GPO Box F366
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6 November 2013

Dear Andy

2013 Asset Management System Review - Electricity Generation Licence EGL9

We have completed the Asset Management System Review for South West Cogeneration Joint Venture for the period 1 July 2010 to 30 June 2013 and are pleased to submit our report to you.

I confirm that this report is an accurate presentation of the findings and conclusions from our review procedures.

If you have any questions or wish to discuss anything raised in the report, please contact me on 08 9365 7024 or Andrew Baldwin on 08 9365 7236.

Yours sincerely

Richard Thomas
Partner

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1 Independent Reviewer's Report

With the Authority's approval, Deloitte Touche Tohmatsu was engaged to conduct a limited assurance review of South West Cogeneration Joint Venture's (SWCJV) Electricity Generation Licence (EGL9) (the **Licence**) asset management system. Deloitte engaged KT & Sai Associates Pty Ltd to provide advice where technical expertise was required.

The review was conducted in accordance with the specific requirements of the Licence and the August 2010 issue of the *Audit Guidelines: Electricity, Gas and Water Licences* issued by the Authority (**Audit Guidelines**) for the period 1 July 2010 to 30 June 2013.

SWCJV's responsibility for maintaining an effective asset management system

SWCJV is responsible for putting in place policies, procedures and controls, which are designed to provide for an effective asset management system for assets subject to the Licence.

Our responsibility

Our responsibility is to express a conclusion on the effectiveness of SWCJV's asset management systems to meet Licence requirements based on our procedures. We conducted our engagement in accordance with Australian Standard on Assurance Engagements *ASAE 3500 Performance Engagements* issued by the Australian Auditing and Assurance Standards Board and the Audit Guidelines, in order to state whether, based on the procedures performed, anything has come to our attention to indicate that SWCJV had not established and maintained an effective asset management system for assets subject to the Licence, in accordance with the Audit Guidelines. Our engagement provides limited assurance as defined in ASAE 3500.

Our procedures were set out in the Review Plan, reviewed and agreed by the Authority and set out in Appendix A.

Limitations of use

This report is made solely to the management of SWCJV for the purpose of its reporting requirements under section 14 of the *Electricity Industry Act 2004*. We disclaim any assumption of responsibility for any reliance on this report to any person other than the management of SWCJV, or for any purpose other than that for which it was prepared. We disclaim all liability to any other party for all costs, loss, damages, and liability that the other party might suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party, or the reliance on our report by the other party.

Inherent limitations

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement conducted in accordance with ASAE 3500 and consequently does not allow us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement. Accordingly, we will not express an opinion providing reasonable assurance.

We cannot, in practice, examine every activity and procedure, nor can we be a substitute for management's responsibility to maintain adequate controls over all levels of operations and its responsibility to prevent and detect irregularities, including fraud. Accordingly, readers of our reports should not rely on the report to identify all potential instances of non-compliance which may occur.

Any projection of the evaluation of the level of compliance to future periods is subject to the risk that the systems may become inadequate because of changes in conditions, or that the degree of compliance with management procedures may deteriorate.

Independence

In conducting our engagement, we have complied with the independence requirements of the Australian professional accounting bodies.

Conclusion

Based on our work described in this report, nothing has come to our attention to indicate that SWCJV had not established and maintained an effective asset management system for assets subject to the Licence and in operation during the period 1 July 2010 to 30 June 2013.

Table 3 of this report provides effectiveness ratings for each of the 12 key processes in the asset management life-cycle. For those aspects of SWCJV's asset management system that were assessed as having opportunities for improvement, relevant observations, recommendations and action plans are summarised at section 2.4 of this report and detailed at section 4 of this report.

DELOITTE TOUCHE TOHMATSU

Richard Thomas

Partner

Perth, 6 November 2013

2 Executive Summary

2.1 Introduction and background

The Economic Regulation Authority (the **Authority**) has, under the provisions of the *Electricity Industry Act 2004* (the **Act**), issued the South West Cogeneration Joint Venture (**SWCJV**) an Electricity Generation Licence (EGL9) (the **Licence**).

SWCJV has been granted a licence to operate existing generating works on a 120 MW natural gas fired cogeneration facility, which supplies steam and electricity to the BHP Billiton Worsley Alumina refinery near Bunbury in Western Australia and electricity to the south west interconnected grid under a power purchase agreement with Verve Energy. The joint venture partners are Verve Energy and Origin Energy.

The cogeneration plant commenced commercial operations in November 2000, at which time SWCJV entered into:

- A site services agreement with Worsley Alumina Pty Ltd (**WAPL**) to operate the facility, which is constructed adjacent to WAPL's existing powerhouse within WAPL's refinery site
- A long term service agreement with GE Contractual Services (**GECS**), which is responsible for major site maintenance and is represented by an on-site resident engineer.

Section 14 of the Act requires SWCJV to provide to the Authority an asset management system review (the **review**) conducted by an independent expert acceptable to the Authority not less than once in every 24 month period. The Authority has elected to extend the period to be covered by the review to the 36 month period ending 30 June 2013.

The review has been conducted in accordance with the August 2010 issue of the *Audit Guidelines: Electricity, Gas and Water Licences* (**Audit Guidelines**), which sets out 12 key processes in the asset management life-cycle.

2.2 Findings

SWCJV, as the holder of the Licence, is the special purpose vehicle established by the two joint venture partners to operate and maintain the cogeneration plant in accordance with the Joint Venture's contractual arrangements with WAPL. SWCJV does not have the capacity to undertake those strategic asset management functions (elements of the Asset planning, Asset Creation & Acquisition and Asset Disposal functions), which are independently performed by the owners of the joint venture.

In considering SWCJV's internal control procedures, structure and environment, its compliance arrangements and its information systems specifically relevant to those effectiveness criteria subject to review, we observed that:

- SWCJV has maintained consistent procedures and controls within its asset management system
- SWCJV, WAPL and GECS staff appeared to be qualified and competent for their roles, particularly displaying an understanding of the asset management processes within their area of responsibility.

This review assessed that:

- For the asset management process and policy definition adequacy ratings, 39 of the 55 elements of SWCJV's asset management system are rated as "Adequately defined", five elements are rated as "Requires some improvement" and 11 are not rated
- For the asset management performance ratings, 40 of the 55 elements of SWCJV's asset management system are rated as "Performing effectively", four elements are rated as "Opportunity for improvement" and 11 are not rated
- There are two opportunities for improvement where further action is recommended. These items are collated into single recommendation 1/2013.

Specific assessments for each criterion are summarised at **Table 3** in section 3 “Summary of findings” of this report.

Detailed findings, including relevant observations, recommendations and action plans are located in section 4 “Detailed findings, recommendations and action plans” of this report.

2.3 SWCJV’s response to previous review recommendations

This review considered how SWCJV has progressed against the action plans detailed in the 2010 asset management system review report and SWCJV’s subsequent advice to the Authority.

Our assessment of SWCJV’s progress is that:

- Two action plans have been completed
- One action plan has been closed out as SWCJV determined that it is unable to ameliorate the associated business risks
- One action plan has not yet been fully closed out. This item is addressed at Issue 1/2013 of this report.

Refer to section 5 of this report for further detail.

2.4 Recommendations and action plans

| AMS Key Process and Effectiveness Criteria | Adequacy rating | Issue 1/2013 |
|--|---------------------------------|---|
| <p>8. Risk management (a) and (b)</p> <p>12. Review of AMS</p> | Requires some improvement (B) | <p>Considering the nature of its business model and its contractual arrangements with WAPL, SWCJV has operated on the basis that its approach and related activities are sufficiently mature and stable to meet the expected outcomes of each of the 12 asset management system processes. For the following processes however, SWCJV cannot readily demonstrate that it has regularly challenged and reconsidered the effectiveness of its approach and activities:</p> <ul style="list-style-type: none"> • Risk management: SWCJV has applied a typical risk assessment process to identify relevant risks and record key risks in a risk register. From an operational perspective, WAPL (through the site services agreement) manages the facility’s operational risks through day-to-day work practices and SWCJV monitors risk treatments via regular Coordination Meetings. However, as SWCJV’s risk management activities are not documented in formal policies and procedures and its risk register was last updated in December 2011, SWCJV’s reliance on its past risk related records may be out-dated • Review of AMS: Although the cogeneration facility’s Asset Management Plan has been subject to review and update over the life of the facility, a formal process has not been established for ensuring its currency and that of the broader asset management system (including the collective references, which describe that system). The AMS was last considered by the Owners Committee in December 2010. |
| | Performance rating | |
| | Opportunity for improvement (2) | |

| | |
|---|--|
| <p>Recommendation 1/2013</p> <p>SWCJV schedule a regular (at least annual) review of:</p> <p>(a) The currency and adequacy of its Risk management activities, including the risk register and related risk treatments</p> <p>(b) Its Asset Management Plan and broader asset management system. Consideration should be given to the degree of independence possible in such a review.</p> | <p>Action Plan 1/2013</p> <p>The Facilities Manager will facilitate an annual review of:</p> <p>(a) The currency and adequacy of SWCJV s Risk management activities, including the risk register and related risk treatments</p> <p>(b) The Asset Management Plan and broader asset management system.</p> <p>The result of the annual review will be reported to the JV Owners' Committee meeting for consideration and endorsement.</p> <p>Responsible Person: Facility Manager</p> <p>Target Date: Annually, commencing May 2014</p> |
|---|--|

2.5 Scope and objectives

The objective of the review was to independently examine the effectiveness and performance of the asset management system established for SWCJV's assets subject to SWCJV's electricity generation licence for the period 1 July 2010 to 30 June 2013.

In accordance with the Audit Guidelines, the review considered the effectiveness of SWCJV's existing control procedures within the following 12 key processes in the asset management life-cycle.

| # | Key processes | Effectiveness criteria |
|---|--------------------------------|---|
| 1 | Asset planning | <p>(a) Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning</p> <p>(b) Service levels are defined</p> <p>(c) Non-asset operations (e.g. demand management) are considered</p> <p>(d) Lifecycle costs of owning and operating assets are assessed</p> <p>(e) Funding options are evaluated</p> <p>(f) Costs are justified and cost drivers identified</p> <p>(g) Likelihood and consequences of asset failure are predicted</p> <p>(h) Plans are regularly reviewed and updated.</p> |
| 2 | Asset creation and acquisition | <p>(a) Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions</p> <p>(b) Evaluations include all life-cycle costs</p> <p>(c) Projects reflect sound engineering and business decisions</p> <p>(d) Commissioning tests are documented and completed</p> <p>(e) Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.</p> |
| 3 | Asset disposal | <p>(a) Underutilised and underperforming assets are identified as part of a regular systematic review process</p> <p>(b) The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken</p> <p>(c) Disposal alternatives are evaluated</p> <p>(d) There is a replacement strategy for assets.</p> |

| # | Key processes | Effectiveness criteria |
|---|--|---|
| 4 | Environmental analysis (all external factors that affect the system) | <ul style="list-style-type: none"> (a) Opportunities and threats in the system environment are assessed (b) Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved (c) Compliance with statutory and regulatory requirements (d) Achievement of customer service levels. |
| 5 | Asset operations | <ul style="list-style-type: none"> (a) Operational policies and procedures are documented and linked to service levels required (b) Risk management is applied to prioritise operations tasks (c) Assets are documented in an Asset register, including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data (d) Operational costs are measured and monitored (e) Staff receive training commensurate with their responsibilities. |
| 6 | Asset maintenance | <ul style="list-style-type: none"> (a) Maintenance policies and procedures are documented and linked to service levels required (b) Regular inspections are undertaken of asset performance and condition (c) Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule (d) Failures are analysed and operational/maintenance plans adjusted where necessary (e) Risk management is applied to prioritise maintenance tasks (f) Maintenance costs are measured and monitored. |
| 7 | Asset management information system | <ul style="list-style-type: none"> (a) Adequate system documentation for users and IT operators (b) Input controls include appropriate verification and validation of data entered into the system (c) Logical security access controls appears adequate, such as passwords (d) Physical security access controls appear adequate (e) Data back-up procedures appear adequate (f) Key computations related to licensee performance reporting are materially accurate (g) Management reports appear adequate for the licensee to monitor licence obligations. |
| 8 | Risk management | <ul style="list-style-type: none"> (a) Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system (b) Risks are documented in a risk register and treatment plans are actioned and monitored (c) The probability and consequences of asset failure are regularly assessed. |
| 9 | Contingency planning | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks |

| # | Key processes | Effectiveness criteria |
|----|-----------------------------------|---|
| 10 | Financial planning | (a) The financial plan states the financial objectives and strategies and actions to achieve the objectives (b) The financial plan identifies the source of funds for capital expenditure and recurrent costs (c) The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) (d) The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period (e) The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services (f) Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary. |
| 11 | Capital expenditure planning | (a) There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates (b) The plan provide reasons for capital expenditure and timing of expenditure (c) The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan (d) There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned. |
| 12 | Review of Asset Management System | (a) A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current (b) Independent reviews (e.g. internal audit) are performed of the asset management system. |

Each key process and effectiveness criteria is applicable to SWCJV's Licence and as such were individually considered as part of the review. The Review Plan set out at Appendix A details the risk assessments made for and review priority assigned to each key process and effectiveness criteria.

2.6 Approach

Our approach for this review involved the following activities, which were undertaken during the period March to June 2013:

- Utilising the Audit Guidelines and Reporting Manual as a guide, development of a risk assessment, which involved discussions with key staff and document review to assess relevant controls
- Development of a Review Plan (see **Appendix A**) for approval by the Authority
- Correspondence and interviews with SWCJV staff to gain understanding of process controls in place (see **Appendix B** for staff involved)
- Visited the power station at WAPL's site with a focus on understanding the facility, its function and normal mode of operation, its age and an assessment of the facility against the AMS review criteria
- Review of documents, processes and controls to assess the overall effectiveness of SWCJV's asset management systems (see **Appendix B** for reference listing)
- Consideration of the resourcing applied to maintaining those controls and processes
- Reporting of findings to SWCJV for review and response.

3 Summary of findings

In accordance with the Audit Guidelines, the assessment of both the process and policy definition rating (refer to **Table 1**) and the performance rating (refer to **Table 2**) for each of the key asset management system processes is performed using the below ratings.

For the avoidance of doubt, these ratings do not provide reasonable assurance. Please refer to Section 1 of this report, specifically Inherent Limitations.

Table 1: Asset management process and policy definition adequacy ratings

| Rating | Description | Criteria |
|--------|----------------------------------|---|
| A | Adequately defined | <ul style="list-style-type: none"> Processes and policies are documented Processes and policies adequately document the required performance of the assets Processes and policies are subject to regular reviews, and updated where necessary The asset management information system(s) are adequate in relation to the assets that are being managed. |
| B | Requires some improvement | <ul style="list-style-type: none"> Process and policy documentation requires improvement Processes and policies do not adequately document the required performance of the assets Reviews of processes and policies are not conducted regularly enough The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed). |
| C | Requires significant improvement | <ul style="list-style-type: none"> Process and policy documentation is incomplete or requires significant improvement Processes and policies do not document the required performance of the assets Processes and policies are significantly out of date The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed). |
| D | Inadequate | <ul style="list-style-type: none"> Processes and policies are not documented The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed). |

Table 2: Asset management performance ratings

| Rating | Description | Criteria |
|--------|-----------------------------|---|
| 1 | Performing effectively | <ul style="list-style-type: none"> The performance of the process meets or exceeds the required levels of performance Process effectiveness is regularly assessed and corrective action taken where necessary. |
| 2 | Opportunity for improvement | <ul style="list-style-type: none"> The performance of the process requires some improvement to meet the required level Process effectiveness reviews are not performed regularly enough. Process improvement opportunities are not actioned. |
| 3 | Corrective action required | <ul style="list-style-type: none"> The performance of the process requires significant improvement to meet the required level Process effectiveness reviews are performed irregularly, or not at all Process improvement opportunities are not actioned. |
| 4 | Serious action required | <ul style="list-style-type: none"> Process is not performed, or the performance is so poor that the process is considered to be ineffective. |

This report provides:

- A breakdown of each function of the asset management system into sub-components as described in the Audit Guidelines. This approach is taken to enable a more thorough review of key processes where individual components within a larger process can be of greater risk to the business therefore requiring different review treatment
- A summary of the ratings applied by the review (**Table 3**) for each of:
 - Asset management process and policy definition adequacy (**definition adequacy rating**)
 - Asset management performance (**performance rating**).
- Detailed findings, including relevant observations, recommendations and post review implementation plans (**Section 4**).

Table 3: Asset management system effectiveness summary

Refer to Detailed Findings at section 4 and Review Plan at Appendix A for descriptions of the effectiveness criteria.

| Criteria | Consequence | Likelihood | Inherent Risk | Control Risk | Review Priority | Ratings | |
|--|-------------|------------|---------------|--------------|-----------------|---------------------|------------------|
| | | | | | | Definition adequacy | Performance |
| 1. Asset planning | | | | | | A | 1 |
| 1(a) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 1(b) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 1(c) | Minor | Probable | Low | Moderate | Priority 5 | n/r | n/r |
| 1(d) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 1(e) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 1(f) | Moderate | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 1(g) | Major | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 1(h) | Minor | Unlikely | Low | Moderate | Priority 5 | A | 1 |
| 2. Asset creation and acquisition | | | | | | Not Rated | Not Rated |
| 2(a) | Moderate | Unlikely | Medium | Moderate | Priority 4 | n/r | n/r |
| 2(b) | Moderate | Probable | Medium | Moderate | Priority 4 | n/r | n/r |
| 2(c) | Moderate | Unlikely | Medium | Moderate | Priority 4 | n/r | n/r |
| 2(d) | Moderate | Unlikely | Medium | Moderate | Priority 4 | n/r | n/r |
| 2(e) | Major | Unlikely | High | Moderate | Priority 2 | n/r | n/r |
| 3. Asset disposal | | | | | | Not Rated | Not Rated |
| 3(a) | Minor | Unlikely | Low | Moderate | Priority 5 | n/r | n/r |
| 3(b) | Minor | Probable | Low | Moderate | Priority 5 | n/r | n/r |
| 3(c) | Minor | Probable | Low | Moderate | Priority 5 | n/r | n/r |
| 3(d) | Moderate | Unlikely | Medium | Moderate | Priority 4 | n/r | n/r |
| 4. Environmental analysis | | | | | | A | 1 |
| 4(a) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 4(b) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 4(c) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 4(d) | Moderate | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 5. Asset operations | | | | | | A | 1 |
| 5(a) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 5(b) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 5(c) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 5(d) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 5(e) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 6. Asset maintenance | | | | | | A | 1 |
| 6(a) | Major | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 6(b) | Moderate | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 6(c) | Major | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 6(d) | Major | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 6(e) | Major | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 6(f) | Moderate | Unlikely | Medium | Moderate | Priority 4 | A | 1 |

| Criteria | Consequence | Likelihood | Inherent Risk | Control Risk | Review Priority | Ratings | |
|---|-------------|------------|---------------|--------------|-----------------|---------------------|-------------|
| | | | | | | Definition adequacy | Performance |
| 7. Asset management information system | | | | | | A | 1 |
| 7(a) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 7(b) | Minor | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 7(c) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 7(d) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 7(e) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 7(f) | Minor | Probable | Low | Moderate | Priority 5 | n/r | n/r |
| 7(g) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 8. Risk management | | | | | | B | 2 |
| 8(a) | Major | Probable | High | Moderate | Priority 2 | B | 2 |
| 8(b) | Moderate | Probable | Medium | Moderate | Priority 4 | B | 2 |
| 8(c) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 9. Contingency planning | | | | | | B | 1 |
| 9(a) | Major | Probable | High | Moderate | Priority 2 | B | 1 |
| 10. Financial planning | | | | | | A | 1 |
| 10(a) | Minor | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 10(b) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 10(c) | Minor | Unlikely | Low | Moderate | Priority 5 | A | 1 |
| 10(d) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 10(e) | Minor | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 10(f) | Moderate | Unlikely | Medium | Moderate | Priority 4 | A | 1 |
| 11. Capital expenditure planning | | | | | | A | 1 |
| 11(a) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 11(b) | Minor | Probable | Low | Moderate | Priority 5 | A | 1 |
| 11(c) | Moderate | Probable | Medium | Moderate | Priority 4 | A | 1 |
| 11(d) | Minor | Unlikely | Low | Moderate | Priority 5 | A | 1 |
| 12. Review of AMS | | | | | | B | 2 |
| 12(a) | Moderate | Probable | Low | Moderate | Priority 5 | B | 2 |
| 12(b) | Minor | Probable | Low | Moderate | Priority 5 | B | 2 |

4 Detailed findings, recommendations and action plans

Summary of generation works subject to review

The SWCJV cogeneration facility is located within the boundary of the Worsley Alumina Refinery site near Bunbury. Commissioned in 2000, the plant is comprised of a Frame 9E EGT Gas Turbine and a Nooter Erikson designed Heat Recovery Steam Generator (HRSG) complete with supplementary firing.

Key details relating to SWCJV's facility are:

- The design of the facility is based on the Alstom PG 9171E gas turbine with a nameplate capacity of 116MW
- The facility is connected to the Western Power South West Interconnected Grid at the 132kV switchyard west of the refinery site
- The Facility has two clients, WAPL and Verve Energy. WAPL is the sole consumer of steam from the facility and consumes a portion of the electricity generated. The balance of electricity generated is supplied to the South West Interconnected System as part of the Verve Energy portfolio
- WAPL's operations and maintenance staff are responsible for operating the plant and performing routine and first line intervention maintenance. WAPL personnel are based permanently onsite
- GECS is the major maintenance contractor under a long term Contractual Service Agreement over full maintenance cycles until November 2015. The agreement includes incentives and penalties for GECS, pertaining to availability and reliability of the plant. A resident engineer is present on site
- Gas is purchased from the North West Shelf JV as part of Verve Energy's greater gas portfolio and on sold to the SWCJV. The gas is transported via the Dampier to Bunbury Natural Gas Pipeline (**DBNGP**) by DBP under a separate shipper contract.

A loss of SWCJV's facility has a critical effect on WAPL's business as it provides significant quantities of steam for the alumina refining process. Loss of SWCJV facility leads to a loss of production.

The following tables contain:

- **Findings:** the reviewer's understanding of the process and any issues that have been identified during the review
- **Recommendations:** recommendations for improvement or enhancement of the process or control
- **Action plans:** SWCJV's formal response to review recommendations, providing details of action to be implemented to address the specific issue raised by the review.

4.1 Asset planning

Key process: Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).

Expected outcome: Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised.

| No | Effectiveness criteria | Findings | | |
|--|--|---|--|---|
| 1(a) | Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning | <p>Through discussions with the Facility Manager and consideration of SWCJV's planning processes, we determined that SWCJV's business model and resources relate to operating and maintaining a gas turbine generation plant in accordance with contractual obligations with WAPL. SWCJV does not specifically have the capability to undertake strategic asset planning.</p> <p>From a business planning perspective, we determined that SWCJV has established asset management processes and mechanisms to assimilate the requirements of its various stakeholders. In particular, we observed that SWCJV has:</p> <ul style="list-style-type: none"> Developed an asset management plan for operating and maintaining the various components of the cogeneration facility to achieve optimum performance over its entire life Established a site services agreement with WAPL in relation to site maintenance of the facility and supply of steam and electricity for the refinery Effected a power purchase agreement with Verve Energy to supply electricity on the SWIS Negotiated a contractual service agreement with General Electric Contractual Services (GECS) to ensure continued availability and reliability of the plant. <p>Examination of SWCJV's asset management processes and mechanisms indicates that the broader and long term plans have been defined within the contractual agreements and are subject to regular review by the joint venture partners.</p> | | |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | | | |
| 1(b) | Service levels are defined | <p>Through discussions with the Facility Manager and examination of SWCJV's asset management plan and contractual documentation, we determined that the plant's required service levels have been:</p> <ul style="list-style-type: none"> Agreed and defined within the contractual agreement with WAPL Encapsulated in the asset management plan to facilitate their attainment by keeping track of relevant operational information for each equipment and actual data on plant output and condition. | | |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | | | |
| 1(c) | Non-asset options (e.g. demand management) are considered | <p>As SWCJV's cogeneration facility was established for the primary purpose of supplying steam to WAPL's refinery, SWCJV has not had need to consider non-asset options for its facility.</p> | | |
| | | <table border="1"> <tr> <td>Adequacy Rating: Not rated</td> <td>Performance Rating: Not rated</td> </tr> </table> | Adequacy Rating: Not rated | Performance Rating: Not rated |
| Adequacy Rating: Not rated | Performance Rating: Not rated | | | |

| No | Effectiveness criteria | Findings | |
|------|---|---|---|
| 1(d) | Lifecycle costs of owning and operating assets are assessed | <p>Through discussions with the Facility Manager and examination of SWCJV's asset management plan and contractual documentation, we determined that assessment of lifecycle costs of owning and operating the assets is undertaken by means of SWCJV's asset management plan that considers each major equipment and provides specific details, including:</p> <ul style="list-style-type: none"> • Operating and maintenance philosophy • Key life cycle issues and how they are addressed • Life cycle plan and critical outages • Performance improvement opportunities • Critical reinvestments • Retirement/disposal consideration at end of plant life. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 1(e) | Funding options are evaluated | <p>Through discussions with the Facility Manager and examination of SWCJV's asset management plan and contractual documentation, we determined that:</p> <ul style="list-style-type: none"> • SWCJV's business model and resources do not have the capability to undertake strategic asset planning functions • Funding options are considered and evaluated by the joint venture partners via an Owners' Committee • Day to day operating expenses are funded by the joint venture partners by way of calls for cash. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 1(f) | Costs are justified and cost drivers identified | <p>Through discussions with the Facility Manager and consideration of SWCJV's asset management plan and contractual documentation, we determined that the asset management plan includes a detailed life cycle plan that identifies and assesses all life cycle costs and cost drivers associated with each major equipment at the facility.</p> <p>The plant site is managed using the WAPL site processes including SAP and an enterprise asset management tool to plan, schedule and track costs.</p> | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

| No | Effectiveness criteria | Findings | |
|------|--|---|---|
| 1(g) | Likelihood and consequences of asset failure are predicted | <p>Through discussion with the Facility Manager and consideration of SWCJV's asset management plan and relevant supporting documentation, we observed that SWCJV's asset management plan is a major tool used for predicting the likelihood and consequences of asset failure. Specifically, we observed that</p> <ul style="list-style-type: none"> • The asset management plan considers each major item of equipment and provides specific details of its operation and maintenance strategy and key life cycle issues and redressal plans • A detailed forward maintenance program is maintained for the plant as part of the overall master schedule for the WAPL power house • WAPL's operations and maintenance staff operate the plant and perform routine and first line intervention maintenance on a scheduled basis under a site services agreement with SWCJV. Given the significance of the asset to the refinery operation there is a strong drive to maintain the plant's reliability and availability • A long term service agreement has been established with GECS to perform planned maintenance in accordance with manufacturer's guidelines and expert experience. The Contractor's performance is incentivised by bonuses and penalties associated with plant availability and timely completion of maintenance activities • The management structures, skills and resources assigned to the asset management processes appear to be appropriate. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 1(h) | Plans are regularly reviewed and updated | <p>Through discussions with Facility Manager and consideration of SWCJV's asset management plan and relevant supporting documentation, we determined that the plans are subject to constant review on a regular basis. In addition, we observed that:</p> <ul style="list-style-type: none"> • The detailed maintenance program is maintained as a forward-looking document to avoid unplanned outages and subjected to revision in accordance with continuous improvement with a view to maximising availability and aligning outages to WAPL refinery maintenance programmes • Outages of greater than seven days are loaded into the Western Power on line System Management planning tool in accordance with the Electricity Market rules. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.2 Asset creation and acquisition

Key process: Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay.

Expected outcome: A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.

SWCJV, as the holder of the Licence, is the special purpose vehicle established by the two joint venture partners to operate and maintain the cogeneration plant in accordance with the Joint Venture's contractual arrangements with WAPL. SWCJV does not have the capacity to undertake the strategic asset management functions associated with asset creation and acquisition.

Broader and long term strategic planning and associated project evaluations are subject to the discretion and consideration of the joint venture partners.

There has been no asset creation and acquisition activity during the period under review.

| | |
|----------------------------|-----------|
| Adequacy Rating: | Not rated |
| Performance Rating: | Not Rated |

4.3 Asset disposal

Key process: Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets. Alternatives are evaluated in cost-benefit terms.

Expected outcome: Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs.

SWCJV, as the holder of the Licence, is the special purpose vehicle established by the two joint venture partners to operate and maintain the cogeneration plant in accordance with the Joint Venture's contractual arrangements with WAPL. SWCJV does not have the capacity to undertake the strategic asset management functions associated with asset disposal.

We observed that:

- The replacement strategy for SWCJV's assets is addressed in the contractual agreement with WAPL and also reflected in the Asset Management Plan
- SWCJV has mechanisms in place to identify under-utilised and under-performing assets on a continuing basis and implement corrective action, where appropriate
- There has been no asset disposal activity during the period under review.

| | |
|----------------------------|-----------|
| Adequacy Rating: | Not rated |
| Performance Rating: | Not Rated |

4.4 Environmental analysis

Key process: Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system.

Expected outcome: The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements.

| No | Effectiveness Criteria | Findings |
|------|---|--|
| 4(a) | Opportunities and threats in the system environment are assessed | <p>Through discussion with the Facility Manager and WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, including the Asset Management Plan, Stack Emissions Monitoring Work Instruction and Maintenance Strategy Plan and Schedule, we observed that:</p> <ul style="list-style-type: none"> • SWCJV's environmental obligations are embedded within WAPL's environmental licence obligations for the entire refinery, inclusive of WAPL's own powerhouse • WAPL is the principal licensee of the facility and continues to monitor threats to operations on an ongoing basis • Whilst major plant or system breakdowns are managed through WAPL's asset operations and maintenance processes, non-availability of fuel continues to remain the principal external threat to site operations. <p>We observed that WAPL ensures a systematic review of environmental aspects and impacts of the refinery's environmental license area and does not undertake any external environmental functions outside of those affecting its plant. A procedure document has been established that outlines the methodology for logging, maintenance and reporting of environmental aspects and impacts.</p> |
| | | <p>Adequacy Rating: Adequately defined (A)</p> <p>Performance Rating: Performing effectively (1)</p> |
| 4(b) | Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved | <p>Through discussion with the Facility Manager and WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, we observed that:</p> <ul style="list-style-type: none"> • Comprised within WAPL's overall environmental licence area, the environmental impact of SWCJV facility is minimal. The Cogeneration plant discharge at 25ppm appears insignificant compared to the coal-fired plant of the WAPL's powerhouse • Emissions monitoring is undertaken on a regular basis and the plant has never operated outside of its manufacturer's recommended emissions limit, since its commissioning in 2000 • The plant continues to meet service availability and other performance standards with no reported environmental breaches. <p>We also observed that the cogeneration plant has been fitted with Low NOx burners and appears to be compliant with all regulatory requirements.</p> |
| | | <p>Adequacy Rating: Adequately defined (A)</p> <p>Performance Rating: Performing effectively (1)</p> |

| No | Effectiveness Criteria | Findings | |
|------|---|---|---|
| 4(c) | Compliance with statutory and regulatory requirements | <p>Through discussion with the Facility Manager and WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, including WAPL's Asset Strategy Document, we observed that WAPL operates and monitors its operations in accordance with the following statutory legislation and licences:</p> <ul style="list-style-type: none"> • Environmental Operating Licence • Mines Safety and Inspection Regulations • WA Gas Standards (Gas Fitting and Consumer Gas Installations) regulations 1999 • NOx emissions. We noted that currently there are no requirements for this measurement but annual measurements and estimates are undertaken for reporting to the National Pollutant Inventory • Greenhouse Gases. We observed that measurements from cogeneration plant stack emissions are used to calculate the overall refinery's greenhouse gas concentrations • Environmental Noise Regulations licence, which specifies the permissible noise levels as measured at the site boundary • Water/Liquid discharge. We observed that currently there is zero discharge to the environment from SWCJV's operations as all spills and condensate rejects are diverted to internal discharge systems for treatment and reuse at the refinery. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 4(d) | Achievement of customer service levels | <p>Through discussion with the Facility Manager and WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, we observed that:</p> <ul style="list-style-type: none"> • The SWCJV facility is contractually obligated to meet or exceed 95% availability for its designated operating periods • For the financial years 2010/11, 2011/12 and 2012/13, the gas turbine unit achieved availability of 98.7%, 96.6% and 98.6% respectively • The HRSG unit for generating steam also achieved availability exceeding 95% for each of the financial years 2010/11, 2011/12 and 2012/13 • In relation to community obligations, WAPL operates and monitors its operations in accordance with 4(c) above. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.5 Asset operations

Key process: Operations functions relate to the day-to-day running of assets and directly affect service levels and costs.

Expected outcome: Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.

| No | Effectiveness Criteria | Findings |
|------|--|--|
| 5(a) | Operational policies and procedures are documented and linked to service levels required | <p>Through discussion with the Facility Manager , the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant supporting documentation, including the Asset Management Plan, we observed that:</p> <ul style="list-style-type: none"> • SWCJV facility has comprehensively documented policies, procedures and protocols that outline the requirements for effective operation of assets. The documents are maintained and managed by WAPL’s Operations and Maintenance Team who are responsible for day-to-day safe operation of the facility, under the site services agreement • Documents detailing required service level of each specific plant item as well as operating instructions for specific electrical and mechanical plant have been developed • Control plans for major plant items such as boiler, generator, deaerators, and boiler feed pumps etc. have been established. • Gas turbine start up procedures, examined during our review, appear to be aligned with manufacturer recommendations. <p>We also noted that the plant is operated in accordance with the manufacturer’s requirements with the exception that the supplementary duct firing within the HRSG for generating steam exceeds the manufacturer’s recommended cumulative annual hours of operation of maximum 1,250 hours.</p> <p>The identified exception may impact upon the HRSG’s design life of 25 years, however, SWCJV’s risk assessment has accorded a low risk profile to the issue based on an understanding that the facility will not continue with base load HRSG operation beyond March 2016. Also, the plant’s operating philosophy has been to operate the plant at base load, which reduces thermal stresses.</p> <p>The current condition of HRSG indicates a lower than normal degradation for the age of the asset, hence posing minimal risk even with maximum duct firing exceeding the manufacturer’s recommended cumulative annual hours of operation.</p> |
| | | <p>Adequacy Rating: Adequately defined (A) Performance Rating: Performing effectively (1)</p> |

| No | Effectiveness Criteria | Findings |
|--|--|---|
| 5(b) | Risk management is applied to prioritise operations tasks | <p>Through discussion with the Facility Manager , the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant supporting documentation, including SWCJV’s Operational Risk Register and Monthly Report for June 2013, we observed that:</p> <ul style="list-style-type: none"> • Plant assets are managed in association with refinery requirements using risk-based processes • Maintenance tasks are performed in a sequential manner, giving priority to safety and people, followed by environment and customers • Performance and availability of plant is tracked via a monthly report that contains a detailed record of operational tasks, including inspections, planned and unplanned outages, facility cold/hot start counts, operational data and equipment condition monitoring. The report is signed and issued to all joint venture partners by the Facility Manager • Operator walk-down checklists are signed and dated during each shift, outlining the day-to-day operational checks being undertaken by the operator/s at the start of each shift. <p>We understand that any decision by WAPL on whether to take up Term 2 of the contract; and any election by SWCJV to remain as an IPP will impact on the risk profile of the plant beyond 2016.</p> <p>We note that SWCJV intends to extend the contract with GECS to until the end of Term 1 to ensure that plant availability is not impacted.</p> |
| Adequacy Rating: Adequately defined (A) | | Performance Rating: Performing effectively (1) |
| 5(c) | Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets’ physical/structural condition and accounting data | <p>Through discussion with the Facility Manager and the WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, including SWCJV’s Asset Management Plan, we observed that SWCJV’s plant facility is managed on a day-to-day basis by WAPL staff using the WAPL site processes under the site services agreement. Specifically, we noted that:</p> <ul style="list-style-type: none"> • WAPL staff manage the site using their online company-wide SAP IT system • For each major item of equipment, the IT system holds detailed information, such as the asset’s unique asset identifier, equipment details, type, location, components, expected life purchase date and cost, operational history and maintenance procedures, depreciation rates and book value. |
| Adequacy Rating: Adequately defined (A) | | Performance Rating: Performing effectively (1) |
| 5(d) | Operational costs are measured and monitored | <p>Through discussion with the Facility Manager and the WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, including the SWCJV’s monthly report for June 2013, we observed that:</p> <ul style="list-style-type: none"> • Expense Control Reports are produced on a monthly basis for measuring and monitoring operational costs, including equipment, fuel, staffing, contracts and materials • A comparison of actual against budgeted expenditure is regularly undertaken and any significant variances are reviewed and analysed for underlying causes. |
| Adequacy Rating: Adequately defined (A) | | Performance Rating: Performing effectively (1) |

| No | Effectiveness Criteria | Findings | |
|------|---|---|---|
| 5(e) | Staff receive training commensurate with their responsibilities | <p>Through discussion with the Facility Manager and the WAPL Powerhouse Superintendent and consideration of relevant supporting documentation, including Employees Qualifications List, we observed that WAPL utilises an Operator Traineeship Programme to ensure its operators are fully trained in all aspects of facility operation relevant to the position held. In particular, we observed that:</p> <ul style="list-style-type: none"> • Training registers are maintained to keep training and operator high risk tickets of all staff valid and relevant to their responsibilities • The traineeship programme runs for an 18 month duration. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.6 Asset maintenance

Key process: Maintenance functions relate to the upkeep of assets and directly affect service levels and costs.

Expected outcome: Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.

| No | Effectiveness Criteria | Findings |
|------|--|--|
| 6(a) | Maintenance policies and procedures are documented and linked to service levels required | <p>Through discussion with the Facility Manager , the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant supporting documentation, including SWCJV's Asset Management Plan, we observed that:</p> <ul style="list-style-type: none"> • WAPL's Operations and Maintenance Team are responsible for the day-to-day safe operation and first line intervention maintenance of the facility, under the site services agreement. Comprehensively documented policies, procedures and protocols are maintained that outline the requirements for effective operation of assets • GE Contractual Services (GECS) are the major maintenance contractor under a long term Contractual Service Agreement with the Facility's joint venture partners over full maintenance cycles until November 2015. The agreement includes incentives and penalties for the contractor, pertaining to availability and reliability of the plant. A resident engineer is present on site • Documents detailing the required maintenance level of each specific plant item are maintained within Worsley's SAP system that also coordinates tasks, incorporates condition, risk, breakdown and time based maintenance • Specific plant maintenance instructions for electrical and mechanical plant have been established in accordance with the manufacturer's standard and frequency to validate warranty conditions. Gas turbine start up procedures, examined during our review, appear to be aligned with manufacturer recommendations • Control plans for major plant items such as boiler, generator, deaerators, and boiler feed pumps have been developed. |
| | | <p>Adequacy Rating: Adequately defined (A)</p> <p>Performance Rating: Performing effectively (1)</p> |

| No | Effectiveness Criteria | Findings | |
|------|---|---|---|
| 6(b) | Regular inspections are undertaken of asset performance and condition | <p>Through discussion with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant supporting documentation, including SWCJV's Operator Walk-down Checklist, online SAP time-based Maintenance Schedule and Monthly Report for June 2013, we observed that:</p> <ul style="list-style-type: none"> • Detailed inspection and outage reports are developed for major equipment and outages • A structured programme exists for monitoring the condition of major mechanical and electrical plant items, such as vibration monitors for rotating machinery and inlet air filters • An Operator Walk-down Checklist is completed during each shift by WAPL operators, identifying any maintenance works undertaken • Assessment and inspection reports for equipment condition and performance are made available for management consideration • Performance and plant availability are tracked through monthly reporting. With a recorded plant availability of 97%, the facility was rated to be the second highest available facility in Australia • Major inspections and maintenance works are undertaken by GE Power Systems under their contractual agreement with the joint venture partners. We noted that the contract has incentives and penalties associated with plant availability and reliability. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 6(c) | Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule | <p>Through discussion with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of equipment inspection reports, outage reports and SAP maintenance schedule outlined and tracked under the asset register, we observed that:</p> <ul style="list-style-type: none"> • The SAP system contains planned scheduled maintenance regimes together with those for contingency and emergency situations • All maintenance activities are recorded in the SAP system • Inspection Test Procedures (ITPs) for all facility assets are detailed and cross referenced within the SAP system • Maintenance schedules are monitored • Unplanned works (corrective or emergency) are given the highest priority as they impact on the refinery production <p>We also examined a report on action taken on the Generator windings, as identified in the 2010 AMS review report. We noted that WAPL's first line maintenance and operations responsibility to ensure safe and reliable operation of the facility is critical to the refinery's operation due to the steam demands of the refinery being met by the cogeneration plant operation.</p> <p>In particular, we also observed the long term service agreement with GECS has incentives and penalties associated with plant availability and reliability. The arrangement ensures that maintenance works are completed on schedule to maintain optimum plant availability.</p> | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

| No | Effectiveness Criteria | Findings | |
|------|--|--|---|
| 6(d) | Failures (including the significance of the failure) are analysed and operational/maintenance plans adjusted where necessary | <p>Through discussion with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant procedures and supporting documentation, including internal and third party reports, we observed that those procedures provide for equipment failure to be investigated and where necessary associated systems or procedures be modified to mitigate the likelihood of repeated similar failures.</p> <p>During our review, we examined supporting documentation, including:</p> <ul style="list-style-type: none"> • 0006 UT Thickness on various Plant Equipment • 0005 HP return bends • GT Inspection Report EGG0256 MI 2011 • Generator Field Inspection Report EGG0256 MI 2011 • ICAM Summary Notification Report. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 6(e) | Risk management is applied to prioritise maintenance tasks | <p>Through discussion with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of relevant procedures and supporting documentation, including SWCJV's Operational Risk Register and Monthly Report for June 2013, we observed that:</p> <ul style="list-style-type: none"> • Plant assets are managed in association with refinery requirements using risk-based processes • Maintenance tasks are performed in a sequential manner, giving priority to safety and people, followed by environment and customers • Performance and availability of plant is tracked via a monthly report that contains a detailed record of operational tasks, including inspections, planned and unplanned outages, facility cold/hot start counts, operational data and equipment condition monitoring. The report is signed and issued to all joint venture partners by the Facility Manager. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 6(f) | Maintenance costs are measured and monitored | <p>Through discussion with the Facility Manager, the WAPL Powerhouse Superintendent and consideration of relevant procedures and supporting documentation, including SWCJV's monthly report for June 2013, we observed that:</p> <ul style="list-style-type: none"> • Expense Control Reports are produced on a monthly basis for measuring and monitoring maintenance costs, including maintenance staffing, contracts and spare parts inventory • A comparison of actual against budgeted expenditure is regularly undertaken and any significant variances are reviewed and analysed for underlying causes. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.7 Asset management information system

Key process: An asset management information system is a combination of processes, data and software that support the asset management functions.

Expected outcome: The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.

| No | Effectiveness Criteria | Findings |
|------|--|---|
| 7(a) | Adequate system documentation for users and IT operators | <p>Through discussions with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant system documentation, we observed that WAPL manages the site using its SAP system that is aligned with BHP Billiton's group level IT standards, policies and procedures. In particular, we observed that:</p> <ul style="list-style-type: none"> • The technical documentation for SAP system is maintained and updated in accordance with BHP Billiton's Group Level Document (GLD) standards • Minimum performance requirements to support the effective execution of asset related information management activities are referenced in the GLDs • All documents are stored in BHP Billiton's document management system, which has a tracker for document version control • User guides and other supporting documentation are version controlled and kept up to date. |
| | | <p>Adequacy Rating: Adequately defined (A) Performance Rating: Performing effectively (1)</p> |
| 7(b) | Input controls include appropriate verification and validation of data entered into the system | <p>Through discussion with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant system documentation, we observed that:</p> <ul style="list-style-type: none"> • Input controls are managed through built-in checks in SAP and aligned to BHP Billiton's group level standards • Processes are in place to verify and validate data entered into the IT system, including data reconciliation between old and new systems, checking data transferred between one system to another is accurate, timely and complete and validating data as close as possible to the point of origin, which includes the ability to trace data back to the source document • Profiles are assigned to each employee based on their roles and position. <p>We observed that the input controls as part of the overall IT system are subject to regular testing in accordance with BHP Billiton's GLD and Business Critical Documents (BCD) Self-Assessment and Compliance Standard.</p> |
| | | <p>Adequacy Rating: Adequately defined (A) Performance Rating: Performing effectively (1)</p> |

| No | Effectiveness Criteria | Findings | |
|------|--|---|---|
| 7(c) | Logical security access controls appears adequate, such as passwords | <p>Through discussions with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant supporting documentation, we observed that:</p> <ul style="list-style-type: none"> • Access and permissions are managed in accordance with BHP Billiton’s group level IT standards as contained in the GLDs • User access to information systems and information assets and associated hosting facilities connecting to the Enterprise Network, are granted via a controlled, auditable process that establishes a single point of accountability • End-users are granted the minimum level of access privileges required to perform their job function and to prevent segregation of duties conflicts • Stringent password requirements are maintained to authenticate user access. <p>We noted that operational processes are implemented and monitored for responding to suspected access violations and misuse of user privileges.</p> | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 7(d) | Physical security access controls appear adequate | <p>Through discussions with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant supporting documentation, we observed that group level processes and procedures relating to the access of facilities and the physical protection of information assets and systems have been developed and referenced in BHP Billiton’s GLDs. Specifically in the context of access to computer server rooms on site, we observed that:</p> <ul style="list-style-type: none"> • Access swipe cards are used to restrict and record physical access to the computer server rooms. Access is revoked on termination of an employee and the swipe cards are returned • A quarterly review of access logs to the computer rooms is undertaken to identify any unauthorised access • Contractors are required to be accompanied by appropriate IT personnel when entering the computer rooms. <p>We also noted that adequate precautions appear to have been instigated to contain fire and other damaging events in computer rooms on site.</p> | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

| No | Effectiveness Criteria | Findings | |
|------|--|--|---|
| 7(e) | Data backup procedures appear adequate | <p>Through discussions with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant supporting documentation, we observed that procedures for managing data backup and data restore of WAPL servers have been established consistent with BHP's group level standards. In particular, we observed that:</p> <ul style="list-style-type: none"> • Regular backups are performed in accordance with the defined schedules and media rotation rules • Backup tapes are stored securely and protected from environmental harm and unauthorised access. • A test restore of a specified folder to a specified area is automatically performed with verification on a monthly basis. <p>We also noted that access to the backup tapes is limited to a sub-set of IT Operations personnel who also hold the keys to unlock the Backup Tape Safe and know the combination of the Backup Tape Safe. The access to Backup Tape Safe is examined quarterly and each authorised person confirmed as a current employee along with their position and business requirement to have access to the backup tapes.</p> | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 7(f) | Key computations related to licensee performance reporting are materially accurate | SWCJV's asset management information system does not directly provide data used in any computation related to SWCJV's performance reporting. | |
| | | Adequacy Rating: Not rated | Performance Rating: Not rated |
| 7(g) | Management reports appear adequate for the licensee to monitor licence obligations | <p>Through discussions with the WAPL Manager Information Management and Powerhouse Superintendent and consideration of relevant supporting documentation and management reporting procedures, we determined that site management is undertaken by WAPL staff in accordance with the site services agreement. We also observed that:</p> <ul style="list-style-type: none"> • The IT system on-site is capable of generating a substantial variety of reports • Scheduled reports are run on a regular basis including management reports relating to operation of the plant and performance of routine and first line intervention maintenance. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.8 Risk management

Key process: Risk management involves the identification of risks and their management within an acceptable level of risk.

Expected outcome: An effective risk management framework is applied to manage risks related to the maintenance of service standards.

| No | Effectiveness Criteria | Findings |
|--|--|--|
| 8(a) | Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system. | <p><i>Criteria 8(a) and (b)</i></p> <p>Through discussions with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of SWCJV's risk management practices, we observed that:</p> <ul style="list-style-type: none"> From an operational perspective, SWCJV incorporates risk management as a fundamental aspect of its decision making processes to support and enhance business activities in all areas of its operations. In particular, WAPL (through the site services agreement) manages the facility's operational risks through day-to-day work practices and SWCJV monitors risk treatments via regular Coordination Meetings SWCJV has applied a typical risk assessment process to identify relevant technical and business risks and record key risks and associated treatment plans in a risk register. The risk register was last updated in December 2011 Although it is evident that SWCJV's risk management activities are understood and applied by the JV owners and key staff, its risk management policies and procedures are not fully documented in formal policies and procedures. <p>Considering the nature of its business model and its contractual arrangements with WAPL, SWCJV has operated on the basis that its approach to risk management is sufficiently mature and stable. However, as its risk management activities are not fully documented in formal policies and procedures and its risk register was last updated in December 2011, SWCJV's reliance on its past activities and risk related records may be out-dated.</p> |
| 8(b) | Risks are documented in a risk register and treatment plans are actioned and monitored | |
| | | <p>Adequacy Rating: Requires some improvement (B) Performance Rating: Opportunity for improvement (2)</p> |
| <p>Recommendation 1/2013 (a)</p> <p>For the purpose of addressing this element of its asset management system, SWCJV schedule a regular (at least annual) review of the currency and adequacy of its risk management activities, including the risk register and related risk treatments.</p> | | <p>Action Plan 1/2013 (a)</p> <p>The Facility Manager will facilitate an annual review of the currency and adequacy of SWCJV's Risk management activities, including the risk register and related risk treatments.</p> <p>The result of the annual review will be reported to the JV Owners' Committee meeting for consideration and endorsement.</p> <p>Responsible Person: Facility Manager</p> <p>Target Date: Annually, commencing May 2014</p> |
| 8(c) | The probability and consequences of asset failure are regularly assessed. | <p>Through discussions with the Facility Manager, the WAPL Powerhouse Superintendent and the GECS Contract Performance Manager and consideration of SWCJV's asset planning and risk management practices, we observed that SWCJV has applied the following mechanisms for identifying and assessing the consequence and likelihood of power station asset failure (as per Asset Planning s.1(g)):</p> <ul style="list-style-type: none"> The management and maintenance of the cogeneration assets is reviewed on a day-to-day basis at an operational level and on an annual basis, primarily through the review of the asset management plan A high level of priority is accorded by SWCJV to minimising instances of asset failure and the duration of any such failure. |
| | | |

4.9 Contingency planning

Key process: Contingency plans document the steps to deal with the unexpected failure of an asset.

Expected outcome: Contingency plans have been developed and tested to minimise any significant disruptions to service standards.

| No | Effectiveness Criteria | Findings |
|------|---|--|
| 9(a) | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks. | <p>We recognise that:</p> <ul style="list-style-type: none"> • The SWCJV has been established as a special purpose vehicle to operate a single asset in accordance with the Joint Venture’s contractual arrangements with WAPL • SWCJV focuses on maintaining the cogeneration facility’s availability and does not provide for plant redundancy or all contingencies in the event of an unexpected failure of an asset • A key objective of all stakeholders is to minimise the extent or duration of any interruption, suspension or restriction of the supply of electricity • SWCJV has mitigated its potential losses through business interruption insurance and has facilitated the repair of any major damage to the plant via material damage insurance • SWCJV maintains a supply of spare parts to provide coverage for plant failure and/or maintenance requirements • SWCJV’s Power Purchase Agreement with Verve Energy provides for SWCJV’s electricity contribution to the wholesale electricity market to be made as part of Verve Energy’s portfolio. Under the circumstances where SWCJV is unable to meet its continuity of supply requirements it is a Verve Energy obligation to obtain electricity from other sources for its wholesale activities. <p>Through discussions with the Facility Manager and WAPL Powerhouse Superintendent; and consideration of SWCJV’s operating arrangements, including formal agreements with WAPL and GECS, we determined that the following circumstances impact on the facility’s availability:</p> <ul style="list-style-type: none"> • As the cogeneration facility operates a single gas turbine and heat recovery steam generator, there is no contingency or back up available in the event of an interruption to the supply of electricity • The facility is required to meet or exceed 95% availability for its designated operating periods (i.e. periods other than scheduled maintenance outages) • As the inherent purpose of the cogeneration facility is to supply steam and electricity to WAPL’s refinery, WAPL has a direct incentive to maintain the facility’s availability so that the required levels of steam are supplied • WAPL’s contractual responsibility for the day-to-day operation and maintenance of the facility requires its close management of plant availability, including action required in the event of an emergency or unplanned interruption • WAPL’s site management procedures also accommodate WAPL’s and SWCJV’s requirements to ensure the safety of staff and the cogeneration plant in the event of an emergency or unplanned interruption • The long term services agreement with GECS to perform major maintenance activities and to provide an on-site engineering presence provides a further level of support for achieving the required 95% availability. <p>We examined records of plant availability over the last three financial years, which indicate that after allowing for planned maintenance activity, the gas turbine unit achieved availability of 98.7% in 2010/11, 96.6% in 2011/12 and 98.6% in 2012/13.</p> <p>Although SWCJV’s approach to contingency planning is not formally documented, the JV owners have specifically considered that approach and the related activities for managing plant availability to be sufficiently mature, robust and stable to meet the expected outcomes of a contingency planning process. This review makes no further recommendation for improvement in this area.</p> <p>Adequacy Rating: Requires some improvement (B) Performance Rating: Performing effectively (1)</p> |

4.10 Financial planning

Key process: The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term.

Expected outcome: A financial plan that is reliable and provides for the long-term financial viability of the services.

| No | Effectiveness Criteria | Findings |
|--|---|---|
| 10(a) | The financial plan states the financial objectives and strategies and actions to achieve the objectives | Through discussion with the Facility Manager and consideration of SWCJV's financial planning mechanisms, we observed that: <ul style="list-style-type: none"> SWCJV's financial plan takes the form of an operational budget that is prepared on a rolling six year basis, reflecting its financial objectives and strategies that are driven by its contractual agreements for generation and supply of steam and electricity The financial plan puts together the financial elements of the plant's operations to reflect its financial viability over the long term. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | |
| 10(b) | The financial plan identifies the source of funds for capital expenditure and recurrent costs | Through discussion with the Facility Manager and consideration of SWCJV's financial planning mechanisms, we determined that JV revenue is retained for maintenance and capital expenditure where required, based on retained funds capacity or by submission to the JV partners. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | |
| 10(c) | The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) | SWCJV's financial plan constitutes a summary of its income and expenses from the supply of steam and electricity under its contractual agreements, which is prepared and updated annually. Note that under the terms of the joint venture, a statement of financial position is not prepared. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | |
| 10(d) | The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period | Through discussions with the Facility Manager and consideration of SWCJV's financial planning mechanisms, we observed that SWCJV's financial plan: <ul style="list-style-type: none"> Provides projections of income and expenses up to six years ahead Is prepared on an annual basis and updated every year for the projections of income and expenses Includes a summary of planned capital expenditure projects for the next six years with a brief description of the intended purpose of the project. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | |

| No | Effectiveness Criteria | Findings | |
|-------|---|--|---|
| 10(e) | The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services | <p>Through discussions with the Facility Manager and examination of the SWCJV's financial plans for the three years relevant to this review, we determined that the financial plan:</p> <ul style="list-style-type: none"> • Provides a detailed monthly view of operational, maintenance and administration expenses on a rolling six year basis • Includes a summary of current and planned capital expenditure projects over the next six years, with a brief description of each project's purpose. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |
| 10(f) | Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary | <p>Through discussions with the Facility Manager and examination of SWCJV's financial planning mechanisms, we observed that:</p> <ul style="list-style-type: none"> • An operating programme and budget is prepared and presented to the JV Owners Committee for approval on an annual basis • A variance analysis report is produced on a regular basis to enable the JV Owners Committee to: <ul style="list-style-type: none"> ▪ Assess actual versus budgeted income and expenditure ▪ Identify areas that are over budget or problematic and determine necessary corrective action • A Statement of Account is prepared and provided to each of the JV partners on a monthly basis that contains a summary of proceeds received or accrued and costs paid or accrued since submission of previous Statement of Account. | |
| | | Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) |

4.11 Capital expenditure planning

Key process: The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates.

Expected outcome: A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.

| No | Effectiveness Criteria | Findings |
|---|--|--|
| 11(a) | There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates | Through discussions with the Facility Manager and consideration of SWCJV's capital planning procedures and examination of the capital expenditure plans for the three years relevant to this review, we determined that: <ul style="list-style-type: none"> • A capital expenditure plan is included in the annual financial plan • Capital expenditure planning is undertaken along with financial planning on a rolling six year basis • The plan provides information on the amount of budgeted capital expenditure, purpose and description of the spend • The plan is submitted to JV Owners Committee for approval on an annual basis. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately defined (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately defined (A) | Performance Rating: Performing effectively (1) | |
| 11(b) | The plan provides reasons for capital expenditure and timing of expenditure | Through discussions with the Facility Manager and consideration of SWCJV's capital planning procedures and examination of the capital expenditure plans for the three years relevant to this review, we determined that the capital expenditure plan outlines the: <ul style="list-style-type: none"> • Details of the financial year in which the capital expenditure amount is planned • Reasons for the expenditure. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately documented (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately documented (A) | Performance Rating: Performing effectively (1) | |
| 11(c) | The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan | Through discussions with the Facility Manager and consideration of SWCJV's capital planning procedures and examination of the capital expenditure plans for the three years relevant to this review, we determined that : <ul style="list-style-type: none"> • SWCJV's procedures require life cycle costs of assets to be assessed and recorded in the asset management plan for each major equipment, including key life cycle issues, critical outages and operating and maintenance philosophy • The capital expenditure plan concurs with the assessed life cycle costs of the plant's assets. |
| | | <table border="1"> <tr> <td>Adequacy Rating: Adequately documented (A)</td> <td>Performance Rating: Performing effectively (1)</td> </tr> </table> |
| Adequacy Rating: Adequately documented (A) | Performance Rating: Performing effectively (1) | |

| No | Effectiveness Criteria | Findings | |
|-------|--|---|---|
| 11(d) | There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned | <p>Through discussions with the Facility Manager and consideration of SWCJV's capital planning procedures and examination of the capital expenditure plans for the three years relevant to this review, we determined that:</p> <ul style="list-style-type: none"> • As part of the operating programme and budget, the annual capital expenditure budget is presented to the JV Owners Committee for approval • On completion, the projects are reviewed by the JV Owners Committee against the approved criteria to test whether the project objectives were met. | |
| | | Adequacy Rating: Adequately documented (A) | Performance Rating: Performing effectively (1) |

4.12 Review of Asset Management System

Key process: The asset management system is regularly reviewed and updated.

Expected outcome: Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency.

| No | Effectiveness Criteria | Findings | |
|-------|---|---|--|
| 12(a) | A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current | <p>The Facility Manager is responsible for maintaining the currency of the SWCJV <i>Asset Management Plan – Unit 1</i> and for monitoring the adequacy of the asset management system.</p> <p>Although the Asset Management Plan has been subject to review and update over the life of the cogeneration facility, a formal process has not been established for ensuring its currency and that of the broader asset management system (including the collective references, which describe that system).</p> <p>We recognise that the:</p> <ul style="list-style-type: none"> Plant’s operating regime enables maintenance activities to be scheduled in a predictable manner JV owners consider that SWCJV’s asset management approach and related activities are sufficiently mature, robust and stable. | |
| | | Adequacy Rating: Requires some improvement (B) | Performance Rating: Opportunity for improvement (2) |
| 12(b) | Independent reviews (e.g. internal audit) are performed of the asset management system | <p>As noted at 12(a) above, although SWCJV’s Asset Management Plan has been subject to review and update, a formal process has not been established for ensuring its currency and that of the broader asset management system. Such a formal process should also consider the need for a sufficient degree of independence in that review.</p> | |
| | | Adequacy Rating: Requires some improvement (B) | Performance Rating: Opportunity for improvement (2) |
| | <p>Recommendation 1/2013 (b)</p> <p>SWCJV schedule a regular (at least annual) review of its Asset Management Plan and broader asset management system. Consideration should be given to the degree of independence possible in such a review.</p> | <p>Action Plan 1/2013 (b)</p> <p>The Facility Manager will facilitate an annual review of the Asset Management Plan and broader asset management system:</p> <p>The result of the annual review will be reported to the JV Owners’ Committee meeting for consideration and endorsement. Responsible Person: Facility Manager</p> <p>Target Date: Annually, commencing May 2014</p> | |

5 Follow-up of previous review action plans

| Rec. No | Ref | Recommendation | Previous Review Action Plan | Status | Revised action plan (if applicable) |
|---------|------|---|---|---|-------------------------------------|
| 1 | 6(c) | Reports on action taken on generator windings and turning gear be available for the next review. (Non-mandatory recommendation Audit guidelines 11.4). | Reports on action taken on generator windings and turning gear will be available for the next review. Responsible Person: Facility Manager Target Date: December 2011 | Complete Reports on action taken on generator windings and turning gear were completed in 2011 and made available for this asset management system review. | N/A |
| 2 | 4(b) | A risk register should be developed along with appropriate responses. (Non-mandatory recommendation Audit guidelines 11.4). | A risk register will be developed along with appropriate responses. Responsible Person: Facility Manager Target Date: December 2010 | Complete The risk register was updated in 2011 to include material business risks in addition to technical and operational risks. | N/A |
| 3 | 9(a) | Consideration is given to developing contingency plans arising from risk register and other identified risks. (Non-mandatory recommendation Audit guidelines 11.4). | Contingency plans arising from risk register and other identified risks will be developed. Responsible Person: Facility Manager Target Date: March 2011 | Closed out In May 2011, SWCJV determined that several of the business risks associated with plant availability and contingency planning are “unable to be ameliorated”, with no further action to be taken. This review concludes (refer to 9(a) above) that although SWCJV’s approach to contingency planning is not formally documented, the JV owners have specifically considered that approach and related activities for managing plant availability to be sufficiently mature, robust and stable to meet the expected outcomes of a contingency planning process. | N/A |

| Rec. No | Ref | Recommendation | Previous Review Action Plan | Status | Revised action plan (if applicable) |
|---------|-----|---|---|---|-------------------------------------|
| 4 | 12 | No specific recommendation was made by the 2010 AMS review, however the SWCJV developed an action plan. | <p>A process of scheduled periodic reviews of the AMS functions that are within the scope of the joint venture agreement will be scheduled.</p> <p>Responsible Person: Facility Manager Target Date: December 2010</p> | <p><i>Superseded</i></p> <p>In December 2010, this item was included as an agenda item for the Owners Committee to discuss, however since that time the Owners Committee has not reconsidered the currency of the asset management system.</p> <p>Refer to item 1/2013 (b)</p> | Refer to item 1/2013 (b) |

Appendix A – Review plan

South West Cogeneration Joint Venture

**Electricity Generation Licence
(EGL9)**

**2013 Asset Management System
Review**

Review Plan

July 2013

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1 Introduction

Overview

The Economic Regulation Authority (**the Authority**) has under the provisions of the Electricity Industry Act 2004 (**Electricity Act**), issued to South West Cogeneration Joint Venture (**SWCJV**) an Electricity Generation Licence (EGL9) (**the Licence**). The owning joint venture partners of SWCJV are Electricity Generation Corporation (trading as Verve Energy) and Origin Energy.

Section 14 of the Electricity Act requires SWCJV to provide the Authority an asset management systems review (**the review**) conducted by an independent expert acceptable to the Authority not less than once in every 24 month period. With the Authority's approval, Deloitte Touche Tohmatsu (**Deloitte**) has been appointed to conduct the review for the period 1 July 2010 to 30 June 2013.

SWCJV has been granted a licence to operate existing generating works on a 120 MW natural gas fired cogeneration facility, which supplies steam and electricity to the BHP Billiton Worsley Alumina refinery near Bunbury in Western Australia and electricity to the Wholesale Electricity Market (WEM). The cogeneration plant commenced commercial operation in November 2000.

The review will be conducted in accordance with the August 2010 issue of the *Audit Guidelines: Electricity, Gas and Water Licences* (**Audit Guidelines**). In accordance with the Audit Guidelines this document represents the Review Plan (**the Plan**) that is to be agreed upon by Deloitte and SWCJV and presented to the Authority for approval.

Objective

The objective of the review is to independently examine the effectiveness and performance of the asset management system established for the assets subject to SWCJV's Licence.

Scope

In accordance with the Audit Guidelines, the review is required to consider the effectiveness of SWCJV's existing control procedures within the 12 key processes in the asset management life-cycle as outlined below at Table 1.

Table 1 – Asset management system key processes and effectiveness criteria

| # | Key processes | Effectiveness criteria |
|---|----------------|--|
| 1 | Asset planning | <ul style="list-style-type: none"> • Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning • Service levels are defined • Non-asset operations (e.g. demand management) are considered • Lifecycle costs of owning and operating assets are assessed • Funding options are evaluated • Costs are justified and cost drivers identified • Likelihood and consequences of asset failure are predicted • Plans are regularly reviewed and updated. |

| # | Key processes | Effectiveness criteria |
|---|--|---|
| 2 | Asset creation and acquisition | <ul style="list-style-type: none"> • Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions • Evaluations include all life-cycle costs • Projects reflect sound engineering and business decisions • Commissioning tests are documented and completed • Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood. |
| 3 | Asset disposal | <ul style="list-style-type: none"> • Underutilised and underperforming assets are identified as part of a regular systematic review process • The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken • Disposal alternatives are evaluated • There is a replacement strategy for assets. |
| 4 | Environmental analysis (all external factors that affect the system) | <ul style="list-style-type: none"> • Opportunities and threats in the system environment are assessed • Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved • Compliance with statutory and regulatory requirements • Achievement of customer service levels. |
| 5 | Asset operations | <ul style="list-style-type: none"> • Operational policies and procedures are documented and linked to service levels required • Risk management is applied to prioritise operations tasks • Assets are documented in an Asset register, including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data • Operational costs are measured and monitored • Staff receive training commensurate with their responsibilities. |
| 6 | Asset maintenance | <ul style="list-style-type: none"> • Maintenance policies and procedures are documented and linked to service levels required • Regular inspections are undertaken of asset performance and condition • Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule • Failures are analysed and operational/maintenance plans adjusted where necessary • Risk management is applied to prioritise maintenance tasks • Maintenance costs are measured and monitored. |

| # | Key processes | Effectiveness criteria |
|----|-------------------------------------|---|
| 7 | Asset management information system | <ul style="list-style-type: none"> • Adequate system documentation for users and IT operators • Input controls include appropriate verification and validation of data entered into the system • Logical security access controls appears adequate, such as passwords • Physical security access controls appear adequate • Data back-up procedures appear adequate • Key computations related to licensee performance reporting are materially accurate • Management reports appear adequate for the licensee to monitor licence obligations. |
| 8 | Risk management | <ul style="list-style-type: none"> • Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system • Risks are documented in a risk register and treatment plans are actioned and monitored • The probability and consequences of asset failure are regularly assessed. |
| 9 | Contingency planning | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks. |
| 10 | Financial planning | <ul style="list-style-type: none"> • The financial plan states the financial objectives and strategies and actions to achieve the objectives • The financial plan identifies the source of funds for capital expenditure and recurrent costs • The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) • The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period • The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services • Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary. |
| 11 | Capital expenditure planning | <ul style="list-style-type: none"> • There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates • The plan provide reasons for capital expenditure and timing of expenditure • The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan • There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned. |

| # | Key processes | Effectiveness criteria |
|----|-----------------------------------|---|
| 12 | Review of Asset Management System | <ul style="list-style-type: none"> • A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current • Independent reviews (e.g. internal audit) are performed of the asset management system. |

Responsibility

SWCJV's responsibility for maintaining an effective asset management system

SWCJV is responsible for putting in place policies, procedures and controls, which are designed to provide for an effective asset management system for assets subject to the Licence.

Deloitte's responsibility

Our responsibility is to express a conclusion on the effectiveness of SWCJV's asset management systems to meet Licence requirements based on our procedures. We will conduct our engagement in accordance with Australian Standard on Assurance Engagements *ASAE 3500 Performance Engagements* issued by the Australian Auditing and Assurance Standards Board and the Audit Guidelines, in order to state whether, based on the procedures performed, anything has come to our attention that causes us to believe that SWCJV's asset management system has not been operating effectively, in all material respects, in accordance with the Audit Guidelines. Our engagement will provide limited assurance as defined in ASAE 3500.

Limitations of use

Our report will be produced solely for the management of SWCJV, for the purpose of meeting the reporting requirements of section 14 of the Act. We disclaim any assumption of responsibility for any reliance on this report to any person other than the management of SWCJV for any purpose other than that for which it was prepared. We disclaim all liability to any other party for all costs, loss, damages, and liability that the other party might suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party, or the reliance on our report by the other party.

Inherent limitations

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement conducted in accordance with ASAE 3500 and consequently does not allow us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement. Accordingly, we will not express an opinion providing reasonable assurance.

We cannot, in practice, examine every activity and procedure, nor can we be a substitute for management's responsibility to maintain adequate controls over all levels of operations and their responsibility to prevent and detect irregularities, including fraud. Accordingly, readers of our report should not rely on the report to identify all potential opportunities for improvement which may be required.

Any projection of the evaluation of the level of effectiveness to future periods is subject to the risk that the systems may become inadequate because of changes in conditions, or that the degree of effectiveness with management procedures may deteriorate.

Independence

In conducting our engagement, we will comply with the independence requirements of the Australian professional accounting bodies.

2 Approach

The review will be conducted in three distinct phases, being a risk assessment, system analysis/policy and procedure review and examination of performance. From the review results, a report will be produced to outline findings, overall assessments and recommendations for improvement in line with the Audit Guidelines. Each step of the review is discussed in detail below.

Risk assessment

The review will focus on identifying or assessing those activities and management control systems to be examined and the matters subject to review. Therefore, the purpose of conducting the risk assessment as a preliminary phase enables the reviewer to focus on pertinent/high risk areas of SWCJV's licence obligations. The risk assessment gives specific consideration to the status of post review action plans devised in response to previous review recommendations, changes to SWCJV's systems and processes and any matters of significance raised by the Authority and/or SWCJV. The level of risk and materiality of the process determine the level of review required i.e. the greater the materiality and the higher the risk, the more effort will be applied.

The first step of the risk assessment is the rating of the potential consequences of SWCJV not meeting its licence obligations, in the absence of mitigating controls. The consequence rating descriptions listed at Table 10 of the Audit Guidelines (refer to **Appendix 1-A**), provides the risk assessment with context to enable the appropriate consequence rating to be applied to each obligation subject to review.

Once the consequence has been determined, the likelihood of SWCJV not meeting its licence obligations (against the defined effectiveness criteria) is assessed using the likelihood rating listed at Table 11 of the Audit Guidelines (refer to **Appendix 1-B**). The assessment of likelihood is based on the expected frequency of non-performance against the defined criteria, over a period of time.

Table 2 below (sourced from Table 12 of the Audit Guidelines) outlines the combination of consequence and likelihood ratings to determine the level of inherent risk associated with each individual effectiveness criteria.

Table 2: Inherent risk rating

| Likelihood | Consequence | | |
|------------|-------------|----------|-------|
| | Minor | Moderate | Major |
| Likely | Medium | High | High |
| Probable | Low | Medium | High |
| Unlikely | Low | Medium | High |

Once the level of inherent risk has been determined, the adequacy of existing controls is assessed in order to determine the level of control risk. Controls are assessed and prioritised as weak, moderate or strong dependant on their suitability to mitigate the risks identified. The control adequacy ratings used by this risk assessment are aligned to the ratings listed at Table 14 of the Audit Guidelines (refer to **Appendix 1-C**).

Once inherent risks and control risks are established, the review priority can then be determined using the matrix listed at Table 15 of the Audit Guidelines (refer to **Table 3** below). Essentially, the higher the level of risk the greater the level of examination is required.

Table 3: Assessment of Review Priority

| Inherent Risk | Adequacy of existing controls | | |
|---------------|-------------------------------|-------------------|--------|
| | Weak | Moderate | Strong |
| High | Review priority 1 | Review priority 2 | |
| Medium | Review priority 3 | Review priority 4 | |
| Low | Review priority 5 | | |

The following table outlines the review requirement for each level of review priority. Testing can range from extensive substantive testing around the controls and activities of particular processes to confirming the existence of controls through discussions with relevant staff.

Table 4: Review Priority Table

| Priority Rating and Resulting Review Procedures | |
|---|--|
| Rating | Review requirement |
| Priority 1 | <ul style="list-style-type: none"> • Controls testing and extensive substantive testing of activities • Follow-up and if necessary, re-test matters previously reported. |
| Priority 2 | <ul style="list-style-type: none"> • Controls testing and moderate substantive testing of activities • Follow-up and if necessary, re-test matters previously reported. |
| Priority 3 | <ul style="list-style-type: none"> • Limited controls testing (moderate sample size). Only substantively test activities if further control weakness found • Follow-up of matters previously reported. |
| Priority 4 | <ul style="list-style-type: none"> • Confirmation of existing controls via observation and walk through testing • Follow-up of matters previously reported. |
| Priority 5 | <ul style="list-style-type: none"> • Confirmation of existing controls via observation, discussions with key staff and/or reliance on key references (“desktop review”). |

The risk assessment has been discussed with stakeholders to gain their input as to the appropriateness and factual accuracy of risk and control ratings and associated explanations. The key sources considered in reaching our preliminary assessment of the risk and control ratings were:

- The 2010 asset management system review report and associated risk assessment
- Initial interviews with key SWCJV staff
- Relevant records of SWCJV’s correspondence with the Authority’s Secretariat.

At this stage, the risk assessment can only be a preliminary assessment based on reading of documentation and interviews by the reviewers. It is possible that the ratings and risk assessment comments may be revised as we conduct our work and new evidence comes to light. Accordingly the risk assessment for the asset management system review is a preliminary draft, not a final report, and no reliance should be placed on its findings. It is however an invaluable tool for focussing the review effort.

The asset management system review risk assessment is attached at **Appendix 2**.

Systems analysis/policy and procedure review

The level of policy and procedure review required will be determined utilising the aforementioned priority scale. Once the priority level has been defined, the review will consist of:

- Interviewing key operational and administrative staff responsible for the development and maintenance of policies and procedural type documentation
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to SWCJV's asset management system requirements and standards.

The policy and procedure definition element of the asset management system review will be performed to provide a rating as defined under Table 5 (refer below).

Key documents which may be subject to review are not specifically disclosed in this plan. A list of documents examined will be included in the review report.

Examination of performance

The actual performance of the relevant controls and processes in place will then be examined via:

- Consideration of reports and references evidencing activity
- Interviews with key operational staff
- Physical visit to the plant site
- Consideration of the installation's function, normal modes of operation and age.

A full work program will be completed to record the specific aspects of our review and examination of the performance of each asset management system key process. This work program will be based on:

- The review priority determined by the risk assessment to be applicable to each effectiveness criteria
- The results of the policy and procedure review, as described above
- The location of personnel and activity to be tested.

The performance effectiveness element of the asset management system review will be performed to provide a rating as defined under Table 6 (refer below).

Reporting

In accordance with the Audit Guidelines, the reviewer must provide an assessment of both the process and policy definition rating (refer to **Table 5** below and also **Table 5** of the Audit Guidelines) and the performance rating (refer to **Table 6** below and also **Table 6** of the Audit Guidelines) for each of the key processes in SWCJV's asset management system.

Table 5: Asset management process and policy definition adequacy ratings

| Rating | Description | Criteria |
|--------|----------------------------------|--|
| A | Adequately defined | <ul style="list-style-type: none"> Processes and policies are documented. Processes and policies adequately document the required performance of the assets. Processes and policies are subject to regular reviews, and updated where necessary The asset management information system(s) are adequate in relation to the assets that are being managed. |
| B | Requires some improvement | <ul style="list-style-type: none"> Process and policy documentation requires improvement. Processes and policies do not adequately document the required performance of the assets. Reviews of processes and policies are not conducted regularly enough. The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed). |
| C | Requires significant improvement | <ul style="list-style-type: none"> Process and policy documentation is incomplete or requires significant improvement. Processes and policies do not document the required performance of the assets. Processes and policies are significantly out of date. The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed). |
| D | Inadequate | <ul style="list-style-type: none"> Processes and policies are not documented. The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed). |

Table 6: Asset management performance ratings

| Rating | Description | Criteria |
|--------|-----------------------------|---|
| 1 | Performing effectively | <ul style="list-style-type: none"> The performance of the process meets or exceeds the required levels of performance. Process effectiveness is regularly assessed and corrective action taken where necessary. |
| 2 | Opportunity for improvement | <ul style="list-style-type: none"> The performance of the process requires some improvement to meet the required level. Process effectiveness reviews are not performed regularly enough. Process improvement opportunities are not actioned. |
| 3 | Corrective action required | <ul style="list-style-type: none"> The performance of the process requires significant improvement to meet the required level. Process effectiveness reviews are performed irregularly, or not at all. Process improvement opportunities are not actioned. |
| 4 | Serious action required | <ul style="list-style-type: none"> Process is not performed, or the performance is so poor that the process is considered to be ineffective. |

The asset management review report will be structured to address all key components expected by the Audit Guidelines, including:

- Response to previous review recommendations (refer to **Appendix 3**)
- Performance summary and rating for each effectiveness criteria (Table 1), utilising the asset management process and policy definition adequacy ratings (Table 5) and the asset management performance ratings (Table 6)
- Review observations for each effectiveness criteria
- Status and response to recommendations from the previous review
- Where appropriate, recommendations on actions required to address opportunities for improvement.

Where appropriate, SWCJV will provide a post review implementation plan for incorporation into the report as an appendix.

Appendix 1 – Risk assessment key

1-A Consequence ratings

Source: Audit Guidelines – Electricity, Gas and Water Licences August 2010

| | Rating | Examples of non-compliance | | | |
|---|----------|--|--|--|--|
| | | Supply Quality | Supply Reliability | Consumer Protection | Breaches of legislation or other licence conditions |
| 1 | Minor | Minor public health and safety issues. Breach of quality standards minor - minimal impact on customers. | System failure or connection delays affecting only a few customers. Some inconvenience to customers. | Customer complaints procedures not followed in a few instances. Nil or minor costs incurred by customers. | Licence conditions not fully complied with but issues have been promptly resolved. |
| 2 | Moderate | Event is restricted in both area and time e.g., supply of service to one street is affected up to one day. Some remedial action is required. | Event is restricted in both area and time e.g., supply of service to one street is affected up to one day. Some remedial action is required. | Lapse in customer service standards is clearly noticeable but manageable. Some additional costs may be incurred by some customers. | Clear evidence of one or more breaches of legislation or other licence conditions and/or sustained period of breaches. |
| 3 | Major | Significant system failure. Life-threatening injuries or widespread health risks. Extensive remedial action required. | Significant system failure. Extensive remedial action required. | | |

1-B Likelihood ratings

Source: Audit Guidelines – Electricity, Gas and Water Licences August 2010

| | Level | Criteria |
|---|----------|--|
| A | Likely | Non-compliance is expected to occur at least once or twice a year |
| B | Probable | Non-compliance is expected to occur every three years |
| C | Unlikely | Non-compliance is expected to occur at least once every 10 years or longer |

1-C Adequacy ratings for existing controls

Source: Audit Guidelines – Electricity, Gas and Water Licences August 2010

| Rating | Description |
|----------|--|
| Strong | Strong controls that are sufficient for the identified risks |
| Moderate | Moderate controls that cover significant risks; improvement possible |
| Weak | Controls are weak or non-existent and have minimal impact on the risks |

Appendix 2 – Risk assessment

| 1 | | Asset Planning | | | | |
|---------------------|---|---|------------|----------------------|---------------------|-----------------|
| Key Process: | | Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price). | | | | |
| Outcome: | | Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 1(a) | Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning | Minor | Unlikely | Low | Moderate | Priority 5 |
| 1(b) | Service levels are defined | Minor | Unlikely | Low | Moderate | Priority 5 |
| 1(c) | Non-asset options (e.g. demand management) are considered | Minor | Unlikely | Low | Moderate | Priority 5 |
| 1(d) | Lifecycle costs of owning and operating assets are assessed | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 1(e) | Funding options are evaluated | Minor | Unlikely | Low | Moderate | Priority 5 |
| 1(f) | Costs are justified and cost drivers identified | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 1(g) | Likelihood and consequences of asset failure are predicted | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 1(h) | Plans are regularly reviewed and updated | Minor | Unlikely | Low | Moderate | Priority 5 |
| 2 | | Asset Creation and Acquisition | | | | |
| Key Process: | | Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay | | | | |
| Outcome: | | A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 2(a) | Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 2(b) | Evaluations include all life-cycle costs | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 2(c) | Projects reflect sound engineering and business decisions | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 2(d) | Commissioning tests are documented and completed | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 2(e) | Ongoing legal/environmental/ safety obligations of the asset owner are assigned and understood | Major | Unlikely | High | Moderate | Priority 2 |

| 3 | | Asset Disposal | | | | |
|---------------------|--|------------------------|------------|----------------------|---------------------|-----------------|
| Key Process: | Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets. Alternatives are evaluated in cost-benefit terms. | | | | | |
| Outcome: | Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs. | | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 3(a) | Under-utilised and under-performing assets are identified as part of a regular systematic review process | Minor | Unlikely | Low | Moderate | Priority 5 |
| 3(b) | The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken | Minor | Unlikely | Low | Moderate | Priority 5 |
| 3(c) | Disposal alternatives are evaluated | Minor | Unlikely | Low | Moderate | Priority 5 |
| 3(d) | There is a replacement strategy for assets | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 4 | | Environmental analysis | | | | |
| Key Process: | Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system. | | | | | |
| Outcome: | The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements. | | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 4(a) | Opportunities and threats in the system environment are assessed | Moderate | Probable | Medium | Moderate | Priority 4 |
| 4(b) | Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved | Moderate | Probable | Medium | Moderate | Priority 4 |
| 4(c) | Compliance with statutory and regulatory requirements | Moderate | Probable | Medium | Moderate | Priority 4 |
| 4(d) | Achievement of customer service levels | Moderate | Probable | Medium | Moderate | Priority 4 |

| 5 | | Asset operations | | | | |
|---------------------|--|---|------------|----------------------|---------------------|-----------------|
| Key Process: | | Operational functions relate to the day-to-day running of assets and directly affect service levels and costs. | | | | |
| Outcome: | | Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 5(a) | Operational policies and procedures are documented and linked to service levels required | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 5(b) | Risk management is applied to prioritise operations tasks | Moderate | Probable | Medium | Moderate | Priority 4 |
| 5(c) | Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data | Moderate | Probable | Medium | Moderate | Priority 4 |
| 5(d) | Operational costs are measured and monitored | Moderate | Probable | Medium | Moderate | Priority 4 |
| 5(e) | Staff receive training commensurate with their responsibilities | Moderate | Probable | Medium | Moderate | Priority 4 |

| 6 | | Asset maintenance | | | | |
|---------------------|---|--|------------|----------------------|---------------------|-----------------|
| Key Process: | | Maintenance functions relate to the upkeep of assets and directly affect service levels and costs. | | | | |
| Outcome: | | Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 6(a) | Maintenance policies and procedures are documented and linked to service levels required | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 6(b) | Regular inspections are undertaken of asset performance and condition | Moderate | Probable | Medium | Moderate | Priority 4 |
| 6(c) | Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule | Moderate | Probable | Medium | Moderate | Priority 4 |
| 6(d) | Failures (<i>including the significance of the failure</i>) are analysed and operational/maintenance plans adjusted where necessary | Moderate | Probable | Medium | Moderate | Priority 4 |
| 6(e) | Risk management is applied to prioritise maintenance tasks | Moderate | Probable | Medium | Moderate | Priority 4 |
| 6(f) | Maintenance costs are measured and monitored | Moderate | Probable | Medium | Moderate | Priority 4 |

| 7 | | Asset Management Information System | | | | |
|---------------------|--|--|------------|----------------------|---------------------|-----------------|
| Key Process: | | An asset management information system is a combination of processes, data and software that support the asset management functions. | | | | |
| Outcome: | | The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 7(a) | Adequate system documentation for users and IT operators | Minor | Probable | Low | Moderate | Priority 5 |
| 7(b) | Input controls include appropriate verification and validation of data entered into the system | Moderate | Probable | Medium | Moderate | Priority 4 |
| 7(c) | Logical security access controls appear adequate, such as passwords | Minor | Probable | Low | Moderate | Priority 5 |
| 7(d) | Physical security access controls appear adequate | Minor | Probable | Low | Moderate | Priority 5 |
| 7(e) | Data backup procedures appear adequate | Moderate | Probable | Medium | Moderate | Priority 4 |
| 7(f) | Key computations related to licensee performance reporting are materially accurate | Minor | Probable | Low | Moderate | Priority 5 |
| 7(g) | Management reports appear adequate for the licensee to monitor licence obligations | Minor | Probable | Low | Moderate | Priority 5 |

| 8 | | Risk Management | | | | |
|---------------------|---|---|------------|----------------------|--------------|-----------------|
| Key Process: | | Risk management involves the identification of risks and their management within an acceptable level of risk. | | | | |
| Outcome: | | An effective risk management framework is applied to manage risks related to the maintenance of service standards | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Control Risk | Review Priority |
| 8(a) | Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system | Major | Probable | High | Moderate | Priority 2 |
| 8(b) | Risks are documented in a risk register and treatment plans are actioned and monitored | Moderate | Probable | Medium | Moderate | Priority 4 |
| 8(c) | The probability and consequences of asset failure are regularly assessed | Moderate | Probable | Medium | Moderate | Priority 4 |

| 9 Contingency Planning | | | | | | |
|------------------------|--|--|------------|----------------------|---------------------|-----------------|
| Key Process: | | Contingency plans document the steps to deal with the unexpected failure of an asset. | | | | |
| Outcome: | | Contingency plans have been developed and tested to minimise any significant disruptions to service standards. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 9(a) | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks | Major | Probable | High | Moderate | Priority 2 |

| 10 Financial Planning | | | | | | |
|-----------------------|---|--|------------|----------------------|---------------------|-----------------|
| Key Process: | | The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term. | | | | |
| Outcome: | | A financial plan that is reliable and provides for the long-term financial viability of the services. | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 10(a) | The financial plan states the financial objectives and strategies and actions to achieve the objectives | Moderate | Probable | Medium | Moderate | Priority 4 |
| 10(b) | The financial plan identifies the source of funds for capital expenditure and recurrent costs | Minor | Unlikely | Low | Moderate | Priority 5 |
| 10(c) | The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) | Minor | Probable | Low | Moderate | Priority 5 |
| 10(d) | The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period | Minor | Unlikely | Low | Moderate | Priority 5 |
| 10(e) | The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services | Moderate | Unlikely | Medium | Moderate | Priority 4 |
| 10(f) | Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary | Moderate | Probable | Medium | Moderate | Priority 4 |

| 11 | | Capital expenditure planning | | | | |
|---------------------|---|------------------------------|------------|----------------------|---------------------|-----------------|
| Key Process: | The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates | | | | | |
| Outcome: | A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options. | | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 11(a) | There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates | Moderate | Probable | Medium | Moderate | Priority 4 |
| 11(b) | The plan provides reasons for capital expenditure and timing of expenditure | Minor | Probable | Low | Moderate | Priority 5 |
| 11(c) | The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan | Moderate | Probable | Medium | Moderate | Priority 4 |
| 11(d) | There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned | Minor | Probable | Low | Moderate | Priority 5 |

| 12 | | Review of AMS | | | | |
|---------------------|--|---------------|------------|----------------------|---------------------|-----------------|
| Key Process: | The asset management system is regularly reviewed and updated. | | | | | |
| Outcome: | Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency. | | | | | |
| Ref | Effectiveness criteria | Consequence | Likelihood | Inherent Risk Rating | Controls Assessment | Review Priority |
| 12(a) | A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current | Minor | Probable | Low | Moderate | Priority 5 |
| 12(b) | Independent reviews (e.g. internal audit) are performed of the asset management system | Minor | Probable | Low | Moderate | Priority 5 |

Appendix 3 – Previous review recommendations

Recommendations are drawn from the SWCJV Generation Licence EGL9 Asset Management System Review report dated October 2010. The report includes the following three recommendations, for which the associated action plans were devised by SWCJV.

Issue 1 – Asset Maintenance

The Licensee carried a review of the status of the generator and that revealed that windings need repair at the next major shutdown and turning gear needs close monitoring and rectification of problems that may emerge.

Recommendation 1

Reports on action taken on generator windings and turning gear be available for the next review. (Non mandatory recommendation Audit guidelines 11.4).

Action plan 1

Reports on action taken on generator windings and turning gear will be available for the next review.

Responsible Person: Facilities Manager

Target Date: December 2011

Issue 2 – Risk Management

There would be a benefit in consolidating the risk assessments in a risk register with appropriate responses.

Recommendation 2

A risk register should be developed along with appropriate responses. (Non mandatory recommendation Audit guidelines 11.4).

Action plan 2

A risk register will be developed along with appropriate responses.

Responsible Person: Facilities Manager

Target Date: December 2010

Issue 3 – Contingency Planning

There are no documented contingency plans.

Recommendation 3

Consideration is given to developing contingency plans arising from risk register and other identified risks. (Non mandatory recommendation Audit guidelines 11.4).

Action plan 3

Contingency plans arising from risk register and other identified risks will be developed.

Responsible Person: Facilities Manager

Target Date: March 2011

Appendix B – References

SWCJV staff and representatives participating in the review

- Facility Manager
- WAPL Powerhouse Superintendent
- WAPL Manager Information Management
- GECS Contract Performance Manager.

Deloitte and KT & Sai staff participating in the review

| Name | Position | Hours |
|-------------------|---|-------|
| • Richard Thomas | Partner | 5.5 |
| • Andrew Baldwin | Account Director | 31 |
| • Amit Grover | Senior Analyst | 32 |
| • Darren Gerber | QA Partner | 2 |
| • Tanuja Sanders | Principal Engineer & Director, KT & Sai | 14 |
| • Clive Lancaster | Principal Engineer, KT & Sai | 14 |

Key documents and other information sources examined

- SWCJV Unit 1 Asset Management Plan
- Electricity Transfer Access Contract (Verve Energy, referencing SWCJV)
- Contractual service agreement between SWCJV and GECS
- Site Service Agreement between SWCJV and WAPL
- Power Purchase Agreement between SWCJV and Verve Energy
- Operational risk assessment spreadsheet
- 2010 Post review implementation plan status update
- Financial plans for FY10, FY11 & FY12
- Analysis of budget variance
- ICAM summary notification report – September 2010
- Gas turbine – off line water wash work instruction
- Employee qualifications list
- Cogen start-up work instruction
- Cogen stack sampling maintenance item
- Cogen stack sampling procedure
- WAPL STA-018 information management - minimum performance requirements
- BHP Billiton group level documents
 - 047 Information management - Services
 - 047.01 Information management - technical specifications
 - 048 Information management - security
 - 048 Information management - security self-assessment
 - 049 Information management - service management
 - Backup and Restore Management procedure
 - Structure for information management
 - EHRS - Remediation Tracker - Worsley Alumina
- Worsley Alumina DMS Functional Specification
- UT thickness on various plant equipment procedure
- HP return bends procedure
- Generator Field Inspection Report EGG0256 MI 2011
- GT Inspection Report EGG0256 MI 2011.

Appendix C – Post Review Implementation Plan

Issue 1/2013

Risk management function - (a) and (b)

Review of AMS function

Considering the nature of its business model and its contractual arrangements with WAPL, SWCJV has operated on the basis that its approach and related activities are sufficiently mature and stable to meet the expected outcomes of each of the 12 asset management system processes. For the following processes however, SWCJV cannot readily demonstrate that it has regularly challenged and reconsidered the effectiveness of its approach and activities:

- (a) **Risk management:** SWCJV has applied a typical risk assessment process to identify relevant risks and record key risks in a risk register. From an operational perspective, WAPL (through the site services agreement) manages the facility's operational risks through day-to-day work practices and SWCJV monitors risk treatments via regular Coordination Meetings. However, as SWCJV's risk management activities are not documented in formal policies and procedures and its risk register was last updated in December 2011, SWCJV's reliance on its past risk related records may be out-dated
- (b) **Review of AMS:** Although the cogeneration facility's Asset Management Plan has been subject to review and update over the life of the facility, a formal process has not been established for ensuring its currency and that of the broader asset management system (including the collective references, which describe that system). The AMS was last considered by the Owners' Committee in December 2010.

Recommendation 1/2013

SWCJV schedule a regular (at least annual) review of:

- (a) The currency and adequacy of its Risk management activities, including the risk register and related risk treatments
- (b) Its Asset Management Plan and broader asset management system. Consideration should be given to the degree of independence possible in such a review.

Action Plan 1/2013

The Facilities Manager will facilitate an annual review of:

- (a) The currency and adequacy of SWCJV's Risk management activities, including the risk register and related risk treatments
- (b) The Asset Management Plan and broader asset management system.

The result of the annual review will be reported to the JV Owners' Committee meeting for consideration and endorsement.

Responsible Person: Facility Manager

Target Date: Annually, commencing May 2014