

**Alinta Cogeneration  
(Pinjarra) Pty Ltd**  
**Electricity Generation Licence  
(EGL10)**  
**2010 Asset Management System  
Review**  
**January 2011**

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Mr Corey Dykstra  
Manager Regulatory Affairs  
Alinta Cogeneration (Pinjarra) Pty Ltd  
Level 9, 12-14 The Esplanade  
PERTH WA 6000

10 January 2011

Dear Corey

## **Electricity Generation Licence (EGL10) 2010 Asset Management System Review**

We have completed the Electricity Generation Licence Asset Management System Review for Alinta Cogeneration (Pinjarra) Pty Ltd for the period 1 July 2008 to 30 June 2010 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 9365 7024.

Yours sincerely

**Richard Thomas**  
Partner

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# 1 Independent Reviewer's report

With the Authority's approval, Deloitte Touche Tohmatsu (**Deloitte**) was engaged to conduct a limited assurance review of Alinta Cogeneration (Pinjarra) Pty Ltd's (**Alinta**) Electricity Generation Licence (**Licence**) asset management system. Deloitte engaged KT & Sai Associates Pty Ltd (**KT & Sai**) 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 2008 to 30 June 2010.

## Alinta's responsibility for maintaining an effective asset management system

Alinta 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 Licences.

## Our responsibility

Our responsibility is to express a conclusion on the effectiveness of Alinta'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 Alinta'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.

Our procedures were set out in the Review Plan reviewed and agreed with by the Authority on 4 November 2010, and set out in Appendix A.

## Limitations of use

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## 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 Alinta had not established and maintained an effective asset management system for assets subject to the Licence and in operation during the period 1 July 2008 to 30 June 2010.

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 Alinta's asset management system that were assessed as having opportunities for improvement, relevant observations, recommendations and post review implementation 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, 10 January 2011

# 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 Alinta Cogeneration (Pinjarra) Pty Ltd (**Alinta**) an electricity generation licence (EGL10) (**the Licence**).

The Licence relates to Alinta's operation of electricity generating works at its Pinjarra cogeneration facility. Alinta has an Operating and Maintenance Agreement (**O&M Agreement**) with Alcoa of Australia Ltd (**Alcoa**) where Alcoa has the responsibility for providing and operating an asset management system on Alinta's behalf.

Section 14 of the Act requires Alinta to provide to the Authority with 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.

## 2.2 Findings

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

- Enhanced its working relationship with Alcoa by appointing specific staff resources at the cogeneration facility, improving communication, monitoring and reporting arrangements
- Allocated additional Alinta resources specifically responsible for monitoring the effectiveness and performance of the asset management system for its generating assets
- Demonstrated a continuously improving awareness of and commitment to effective asset operations.

Specific assessments for each criterion are summarised at **Table 3** in the "Summary of findings" section 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 Alinta's response to previous review recommendations

This review considered how Alinta has progressed against the 12 action plans detailed in the 2008 asset management system review report, which related to both of Alinta's generation licences.

Our assessment of Alinta's progress in implementing those action plans is that:

- As two of the action plans relate to Alinta's Wagerup facilities, those action plans are not considered as part of this review
- Action plan 5/08 has been 'closed out' as it relates to Alinta's Transmission Licence, which was surrendered in January 2010. This action plan was not considered as part of this review
- Four action plans raised in the 2008 report have been fully completed
- The remaining five action plans are currently in progress. In each case substantial progress has been made to address the issue raised in the review report, however nominated timeframes for completion have not been achieved. Revised action plans and target dates have been assigned by Alinta.

Refer to section 5 of this report for further detail.

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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## 2.4 Recommendations and action plans

For explanation of the below ratings, please refer to Section 3 of this report.

AMS Key Process and Effectiveness Criteria	Definition adequacy	Performance rating	Issue 1/10
<p><b>Asset planning</b></p> <p>1(h) Plans are regularly reviewed and updated</p> <p><b>Review of AMS</b></p> <p>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>	Requires some improvement (B)	Performing effectively (1)	At the time of our review, we noted that the Pinjarra cogeneration Asset Life Plan is still in draft and has not been formally accepted by the business.
<p><b>Recommendation 1/10</b></p> <p>Alinta finalise and formally approve the Pinjarra Cogeneration Plant Asset Life Plan.</p>		<p><b>Post Review Implementation Plan 1/10</b></p> <p>Alinta will finalise and formally approve the Pinjarra Power Station Asset Life Plan.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> March 2011</p>	

AMS Key Process and Effectiveness Criteria	Definition adequacy	Performance rating	Issue 2/10
<p><b>Asset disposal</b></p> <p>3(c) Disposal alternatives are evaluated</p>	Requires some improvement (B)	Opportunity for improvement (2)	<p>We note that:</p> <ul style="list-style-type: none"> <li>The closure plans and associated costs for Pinjarra generation facilities are currently being developed</li> <li>The Pinjarra Power Station Asset Life Plan references a Decommission Policy as being currently under development.</li> </ul>
<p><b>Recommendation 2/10</b></p> <p>Alinta should:</p> <ul style="list-style-type: none"> <li>Finalise the development of the closure plan and associated costs for Pinjarra cogeneration facilities</li> <li>Develop and formally implement a Decommission Protocol specifically tailored to its generation assets.</li> </ul>		<p><b>Post Review Implementation Plan 2/10</b></p> <p>Alinta will:</p> <ul style="list-style-type: none"> <li>Finalise the development of the closure plan and associated costs for Pinjarra generation facilities</li> <li>Develop and formally implement a Decommission Protocol specifically tailored to our generation assets.</li> </ul> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> June 2011</p>	



AMS Key Process and Effectiveness Criteria	Definition adequacy	Performance rating	Issue 3/10
<p><b>Review of the AMS</b> 12(b) Independent reviews (e.g. internal audit) are performed of the asset management system</p>	<p>Requires significant improvement (C)</p>	<p>Corrective action required (3)</p>	<p>Alinta has not engaged an independent party to perform a review on the asset management system for Pinjarra generation facilities. We also note that the Pinjarra Power Station Asset Life Plan does not currently document the requirement for an independent review to be conducted.</p>
<p><b>Recommendation 3/10</b> Alinta should:</p> <ul style="list-style-type: none"> <li>• Schedule an independent review of the asset management system</li> <li>• Update the Pinjarra Cogeneration Plant Asset Life Plan to reflect the requirement of an independent review being conducted.</li> </ul>		<p><b>Post Review Implementation Plan 3/10</b> Alinta will:</p> <ul style="list-style-type: none"> <li>• Schedule an independent review of the asset management system</li> <li>• Update the Pinjarra Power Station Asset Life Plan to reflect the requirement for an independent review to be conducted.</li> </ul> <p><b>Responsible Person:</b> Manager Operations <b>Target Date:</b> June 2011</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 Alinta's Pinjarra assets subject to Alinta's electricity generation licence for the period 1 July 2008 to 30 June 2010.

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

#	Key processes	Effectiveness criteria
1	Asset planning	<ul style="list-style-type: none"> <li>(a) Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning</li> <li>(b) Service levels are defined</li> <li>(c) Non-asset operations (e.g. demand management) are considered</li> <li>(d) Lifecycle costs of owning and operating assets are assessed</li> <li>(e) Funding options are evaluated</li> <li>(f) Costs are justified and cost drivers identified</li> <li>(g) Likelihood and consequences of asset failure are predicted</li> <li>(h) Plans are regularly reviewed and updated.</li> </ul>
2	Asset creation and acquisition	<ul style="list-style-type: none"> <li>(a) Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions</li> <li>(b) Evaluations include all life-cycle costs</li> <li>(c) Projects reflect sound engineering and business decisions</li> <li>(d) Commissioning tests are documented and completed</li> <li>(e) Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.</li> </ul>
3	Asset disposal	<ul style="list-style-type: none"> <li>(a) Underutilised and underperforming assets are identified as part of a regular systematic review process</li> <li>(b) The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken</li> <li>(c) Disposal alternatives are evaluated</li> <li>(d) There is a replacement strategy for assets.</li> </ul>
4	Environmental analysis (all external factors that affect the system)	<ul style="list-style-type: none"> <li>(a) Opportunities and threats in the system environment are assessed</li> <li>(b) Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved</li> <li>(c) Compliance with statutory and regulatory requirements</li> <li>(d) Achievement of customer service levels.</li> </ul>
5	Asset operations	<ul style="list-style-type: none"> <li>(a) Operational policies and procedures are documented and linked to service levels required</li> <li>(b) Risk management is applied to priorities operations tasks</li> <li>(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</li> <li>(d) Operational costs are measured and monitored</li> <li>(e) Staff receive training commensurate with their responsibilities.</li> </ul>

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

#	Key processes	Effectiveness criteria
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 Alinta'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 August to November 2010:

- 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
- Interviews with Alinta and Alcoa<sup>1</sup> staff to gain understanding of process controls in functions such as planning, asset operations, finance, internal audit and capital expenditure planning (see **Appendix B** for staff involved)
- Visited the Alinta cogeneration facilities at Pinjarra with a focus on understanding the installation, its function and normal modes of operation, its age, and an assessment of the installation against the asset management system review criteria
- Review of documents, processes and controls to assess the overall effectiveness of Alinta's asset management systems (see **Appendix B** for reference listing)
- Reporting of findings to Alinta for review and response.

<sup>1</sup> Alcoa is contracted by Alinta to undertake the operations and maintenance of Alinta's cogeneration facilities

# 3 Summary of findings

In accordance with the Audit Guidelines, the assessment of both the process and policy definition rating (refer to **Table 2**) and the performance rating (refer to **Table 6**) for each of the key processes in Alinta's asset management system 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"> <li>Processes and policies are documented</li> <li>Processes and policies adequately document the required performance of the assets</li> <li>Processes and policies are subject to regular reviews, and updated where necessary</li> <li>The asset management information system(s) are adequate in relation to the assets that are being managed.</li> </ul>
B	Requires some improvement	<ul style="list-style-type: none"> <li>Process and policy documentation requires improvement</li> <li>Processes and policies do not adequately document the required performance of the assets</li> <li>Reviews of processes and policies are not conducted regularly enough</li> <li>The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed).</li> </ul>
C	Requires significant improvement	<ul style="list-style-type: none"> <li>Process and policy documentation is incomplete or requires significant improvement</li> <li>Processes and policies do not document the required performance of the assets</li> <li>Processes and policies are significantly out of date</li> <li>The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed).</li> </ul>
D	Inadequate	<ul style="list-style-type: none"> <li>Processes and policies are not documented</li> <li>The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed).</li> </ul>

**Table 2: Asset management performance ratings**

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

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 5**) 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**).

Note that:

- The risk assessment that was presented in the Review Plan remains unchanged as no issues or concerns were identified that would indicate a need to modify the nature and levels of testing
- For a number of the asset management system functions, Alinta's cogeneration operations apply the Alinta Energy Group business wide policies, procedures and practices

**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
<b>1. Asset planning</b>						<b>A</b>	<b>1</b>
1(a)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
1(b)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
1(c)	Minor	Probable	Low	Moderate	Priority 5	A	1
1(d)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
1(e)	Minor	Probable	Low	Moderate	Priority 5	A	1
1(f)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
1(g)	Major	Unlikely	High	Moderate	Priority 2	A	1
1(h)	Minor	Probable	Low	Weak	Priority 5	B	1
<b>2. Asset creation and acquisition</b>						<b>A</b>	<b>1</b>
2(a)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
2(b)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
2(c)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
2(d)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
2(e)	Major	Unlikely	High	Moderate	Priority 2	B	1
<b>3. Asset disposal</b>						<b>A</b>	<b>1</b>
3(a)	Minor	Unlikely	Low	Moderate	Priority 5	A	1
3(b)	Minor	Probable	Low	Moderate	Priority 5	A	1
3(c)	Minor	Probable	Low	Moderate	Priority 5	B	2
3(d)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
<b>4. Environmental analysis</b>						<b>A</b>	<b>1</b>
4(a)	Moderate	Unlikely	Medium	Strong	Priority 4	A	1
4(b)	Moderate	Probable	Medium	Strong	Priority 4	A	1
4(c)	Moderate	Unlikely	Medium	Strong	Priority 4	B	2
4(d)	Moderate	Probable	Medium	Strong	Priority 4	A	1
<b>5. Asset operations</b>						<b>A</b>	<b>1</b>
5(a)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
5(b)	Moderate	Probable	Medium	Moderate	Priority 4	B	2
5(c)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
5(d)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
5(e)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
<b>6. Asset maintenance</b>						<b>A</b>	<b>1</b>
6(a)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
6(b)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1

						Ratings	
Criteria	Consequence	Likelihood	Inherent Risk	Control Risk	Review Priority	Definition adequacy	Performance
6(c)	Moderate	Probable	Medium	Moderate	Priority 4	B	2
6(d)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
6(e)	Minor	Probable	Low	Moderate	Priority 5	A	1
6(f)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
<b>7. Asset management information system</b>						<b>A</b>	<b>1</b>
7(a)	Minor	Probable	Low	Moderate	Priority 5	A	1
7(b)	Minor	Probable	Low	Moderate	Priority 5	A	1
7(c)	Minor	Probable	Low	Moderate	Priority 5	A	1
7(d)	Minor	Unlikely	Low	Moderate	Priority 5	A	1
7(e)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
7(f)	Minor	Probable	Low	Moderate	Priority 5	Not rated	Not rated
7(g)	Minor	Probable	Low	Weak	Priority 5	A	1
<b>8. Risk management</b>						<b>A</b>	<b>1</b>
8(a)	Major	Probable	High	Moderate	Priority 2	A	1
8(b)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
8(c)	Moderate	Probable	Medium	Moderate	Priority 4	A	1
<b>9. Contingency planning</b>						<b>A</b>	<b>1</b>
9(a)	Major	Probable	High	Moderate	Priority 2	A	1
<b>10. Financial planning</b>						<b>A</b>	<b>1</b>
10(a)	Minor	Unlikely	Low	Moderate	Priority 5	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	Low	Moderate	Priority 5	A	1
10(f)	Moderate	Unlikely	Medium	Moderate	Priority 4	A	1
<b>11. Capital expenditure planning</b>						<b>A</b>	<b>1</b>
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
<b>12. Review of AMS</b>						<b>B</b>	<b>2</b>
12(a)	Moderate	Probable	Medium	Weak	Priority 3	B	1
12(b)	Minor	Likely	Medium	Weak	Priority 3	C	3



# 4 Detailed findings, recommendations and action plans

## Summary of Pinjarra generation facilities subject to this review

The Alinta Pinjarra cogeneration plant is located within Alcoa's Alumina Refinery Facilities at Pinjarra. The plant comprises two gas turbine cogeneration units with heat recovery steam generation boilers. The units were commissioned in 2005 and 2006 respectively. Key details relating to the units are as follows:

- Unit #1 has a nameplate generation capacity of 140MW. Electricity from this unit is transmitted via a 132kV transmission line to Western Power's substation located at the Pinjarra refinery.
- Unit #2 has a similar electricity generation capacity. Electricity from this unit is transmitted via a 7.4km, 330kV transmission line to Western Power's substation located at Oakley.

The two heat recovery steam generators are fitted with duct burners and are rated to produce 400 tonnes per hour of high pressure steam that is supplied to the Alcoa refinery to meet the refinery process steam requirements. Alinta currently maintains an Operating and Maintenance Agreement with Alcoa, which requires Alcoa to maintain Alinta's cogeneration asset management system. Alinta has also established a Long Term Service Agreement with Alstom for the maintenance of the gas turbines.

A loss of Alinta's cogeneration capability has the following effect:

- In the event that Pinjarra cogeneration equipment fails, there is a direct loss of generation for the Western Power operated grid. Loss of one Alinta cogeneration unit has manageable impact on the Alcoa refinery. A loss of both units is likely to have a direct impact on refinery production
- Loss of Pinjarra cogeneration steam capacity may also directly impact refinery production. Due to the cost impact, lost production is significant; therefore concerted effort is made to ensure high availability and reliability of major steam equipment.

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:** Alinta's formal response to review recommendations, providing details of action to be implemented to address the specific issue raised by the review.

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

*This report is intended solely for the use of Alinta for the purpose of its reporting requirements under section 14 of the Act. We do not accept or assume responsibility to anyone other than Alinta for our work, for this report, or for any reliance which may be placed on this report by any third party for any other purpose.*

## 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>From an examination of Alinta's Asset and Life Cycle Management Policy and Framework we determined that:</p> <ul style="list-style-type: none"> <li>Alinta utilises a risk-based asset management system to identify production targets, operational and maintenance activities to deliver necessary performance</li> <li>Alinta's Asset &amp; Lifecycle Management objective is to continually improve long run whole of life asset value, meet regulatory requirements and understand and manage its risk profile.</li> </ul> <p>Through discussions with the Manager Operations and the Technical Specialist and consideration of the above factors, we observed that Alinta has the following asset planning processes:</p> <ul style="list-style-type: none"> <li>Under s.10.4 of the O&amp;M Agreement, Alcoa is required to submit an annual operating plan outlining asset operations and detailed costs for the next financial year. Alinta WA Operations reviews Alcoa's plans and incorporates approved amounts into their financial and operational plans. These plans are tabled at Alinta's Board meetings for approval, presented by the General Manager WA Operations</li> <li>The Asset Life Plans are updated to incorporate the approved financial and operational plans</li> <li>The Pinjarra Cogeneration Plant Asset Life Plan represents the output of the business planning process, which was prepared through site-based workshops</li> <li>Strategic planning is performed at the business unit level i.e. WA Operations with a detailed 1 to 5 year horizon. Through the use of the Pinjarra Asset Life Plan, the plans for the useful life of the asset are also detailed at a high level</li> <li>The WA Operations General Manager is delegated within Alinta as responsible for maintaining site-based asset management system and the life plans.</li> </ul>
		<p><b>Adequacy Rating:</b> Adequately defined (A)</p> <p><b>Performance Rating:</b> Performing effectively (1)</p>

No	Effectiveness criteria	Findings	
1(b)	Service levels are defined	<p>Through discussions with the Manager Operations and the Technical Specialist and examination of the Asset Life Plan prepared for Alinta's Pinjarra facility, we determined that:</p> <ul style="list-style-type: none"> <li>• The plan provides considerable detail for the planning aspects of cogeneration assets, including production capacity/historical results, per Alinta's operational requirements</li> <li>• Alinta's power generation policy is to deliver production targets through effective management of plant operations and maintenance coupled with long term life plans which deliver Alinta's financial goals</li> <li>• Section 2.2 of the Asset Life Plans details the base case assumptions of the operating equipment, specifically detailing the demand requirements on the cogeneration assets</li> <li>• The operating timeframes (i.e. service commitment) of the cogeneration units are detailed in the SWIS outage planner agreed with the IMO, which supports Alinta's business plans.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
1(c)	Non-asset options (e.g. demand management) are considered	<p>Through discussions with the Manager Operations and consideration of Alinta's documented procedures, we determined that Alinta has the following procedures in place for the consideration of non-asset options:</p> <ul style="list-style-type: none"> <li>• Prior to detailing a business case for the purchase of assets, the applicant is required to complete an investigation approval form which is an initial feasibility that is used to allocate resources and timing to the business case development</li> <li>• If the investigation is approved, the applicant is required to complete a business case. Section 3 and section 3.7 of the business case template for major and minor projects respectively requires the applicant to detail project options. Project options relates to various other solutions that may be considered instead of the proposed action including the mandatory consideration of maintaining the status quo.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness criteria	Findings	
1(d)	Lifecycle costs of owning and operating assets are assessed	<p>Through discussions with the Manager Operations and consideration of Alinta's documented procedures, we determined that Alinta has the following procedures in place to assess lifecycle costs in the asset planning stage:</p> <ul style="list-style-type: none"> <li>• At the business case level, high level project and operating costs are included to facilitate the evaluation of the business case scenario proposed. The business case requires the consideration of labour costs, both internal and external, materials, subcontract and disbursements. These considerations are included in a cost summary which provides a financial summary for the recommended project</li> <li>• Key economic analysis inputs used are: <ul style="list-style-type: none"> <li>○ Total 5 year operational costs</li> <li>○ Total 5 year operational savings</li> <li>○ Net operational saving/cost</li> <li>○ Project payback period in months.</li> </ul> </li> <li>• Asset life-cycle costs for assets are included with the asset life plan for the entire life of the asset and updated on a rolling basis, or as best estimates are updated to incorporate new information or requirements.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
1(e)	Funding options are evaluated	<p>Through discussions with the Manager Operations and consideration of Alinta's Asset Life Plans, we determined that Alinta options for funding its electricity generation activities remain a component of the overall commercial considerations in operating and maintaining the relevant assets.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
1(f)	Costs are justified and cost drivers identified	<p>Through discussions with the Manager Operations and consideration of Alinta's Pinjarra Cogeneration Plant Asset Life Plan and asset planning process, we determined that the business case approval process and associated templates require the costs and cost drivers (in the form of a business case) to be identified.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness criteria	Findings	
1(g)	Likelihood and consequences of asset failure are predicted	<p>Alinta has an O&amp;M Agreement with Alcoa, where Alcoa has the responsibility for providing and operating an asset management system on Alinta's behalf. Through discussions with the Manager Operations, Technical Specialist and Alcoa's Principal Mechanical Engineer WAO Powerhouse and review of relevant supporting documentation, we observed that Alcoa (on Alinta's behalf) has applied the following mechanisms for identifying consequence and likelihood of powerhouse asset failure:</p> <ul style="list-style-type: none"> <li>• Asset integrity audits, which are completed on a five yearly basis. Audit findings are maintained in a database and tracked through to completion</li> <li>• Other audits, which feed results into Alcoa's Business Improvement System. Similarly, audit findings are stored and tracked for completion</li> <li>• Loss prevention inspections, as a major aspect of Alcoa's risk management activities directed at powerhouse operations</li> <li>• Classified plant inspections, which are conducted as per statutory requirements. Inspection results are documented within record books and where deficiencies are noted the asset owner is notified. Notices which are not addressed are escalated to more senior managers for consideration and action.</li> </ul> <p>We determined that the results of these audits and inspections are incorporated into the Pinjarra Cogeneration Plant Asset Life Plan.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
1(h)	Plans are regularly reviewed and updated	<p>Through discussions with the Manager Operations and examination of the Pinjarra Power Station Asset Life Plan, we determined that:</p> <ul style="list-style-type: none"> <li>• The Asset Life Plan is intended to be a 'live document', to be updated on a frequent basis, incorporating information as Alinta staff become aware (e.g. financial results, timing of maintenance, trips of the assets, effect on the equivalent operational hours). The Pinjarra Power Station Asset Life Plan is still in draft and has not yet been formally approved and accepted by the business</li> <li>• The Manager Operations is designated as the responsible person of the Pinjarra Power Station Asset Life Plan and as such is responsible for its update to be consistent with current operations.</li> </ul>	
		<b>Adequacy Rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Performing effectively (1)
<p><b>Recommendation 1/10</b></p> <p>Alinta finalise and formally approve the Pinjarra Power Station Asset Life Plan.</p>		<p><b>Action plan 1/10</b></p> <p>Alinta will finalise and formally approve the Pinjarra Power Station Asset Life Plan.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> March 2011</p>	

## 4.2 Asset creation and acquisition

**Key process:** Asset creation and 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.

No	Effectiveness criteria	Findings
2(a)	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions	<p>Through discussions with the Manager Operations and consideration of Alinta's documented procedures, we determined that Alinta has the following procedures in place to manage project evaluations (consistent with asset planning s.1(c) above):</p> <ul style="list-style-type: none"> <li>Alinta has developed a Project Management System (PMS) methodology, which provides the framework for conducting project works so that Alinta derives maximum benefit and is exposed to minimal risk in the execution of the project. The PMS is designed to assist staff perform their duties, by providing guidance and templates to facilitate project evaluations</li> <li>The PMS sets out a number of steps the applicant is required to complete over the life of the project. Project evaluations prior to the approval and implementation of a project requires a number of stages to be completed (i.e. feasibility investigation, business case approval), which is designed to increase transparency and incorporate the business in making an appropriate business decision</li> <li>Prior to detailing a business case, the applicant is required to complete an investigation approval form, which is an initial feasibility that is used to allocate resources and timing to the business case development</li> <li>Section 3 and section 3.7 of the business case template for major and minor projects respectively requires the applicant to detail project options. Project options relates to various other solutions that may be considered instead of the proposed action including the mandatory consideration of maintaining the status quo</li> <li>The business case is reviewed and approved as appropriate. Once approved the project enters the planning stage (section 5 of the PMS) which requires the completion of a Project Execution Plan (PEP).</li> </ul>
		<p><b>Adequacy Rating:</b> Adequately defined (A)</p> <p><b>Performance Rating:</b> Performing effectively (1)</p>

No	Effectiveness criteria	Findings	
2(b)	Evaluations include all life-cycle costs	<p>Through discussions with the Manager Operations and consideration of Alinta's documented procedures, we determined that Alinta has the following procedures in place to manage the evaluation of life-cycle costs (consistent with asset planning s.1(d) above):</p> <ul style="list-style-type: none"> <li>• The PMS details the need to consider project budgets and expenditure at the investigation approval, business case and project execution stages of the project management life-cycle</li> <li>• At the business case level, high level project and operating costs are included to facilitate the evaluation of the business case scenario proposed. The business case requires the consideration of labour costs, both internal and external, materials, subcontract and disbursements. These considerations are included in a cost summary which provides a financial summary for the recommended project</li> <li>• Key economic analysis inputs used are: <ul style="list-style-type: none"> <li>○ Total 5 year operational costs</li> <li>○ Total 5 year operational savings</li> <li>○ Net operational saving/cost</li> <li>○ Project payback period in months.</li> </ul> </li> <li>• Asset life-cycle costs for assets are included with the asset life plan for the entire life of the asset, and updated on a rolling basis, or as best estimates are updated to incorporate new information or requirements.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
2(c)	Projects reflect sound engineering and business decisions	<p>Through discussions with the Manager Operations and consideration of Alinta's documented procedures, we determined that Alinta has the following procedures in place to ensure that projects reflect sound engineering and business decisions:</p> <ul style="list-style-type: none"> <li>• Business cases are instigated by Engineering personnel, requiring business approval</li> <li>• The business case requires the applicant to demonstrate that the project supports Alinta Energy business objectives and mission statement</li> <li>• The Approval of the business case is actioned by a senior management Alinta staff member designated with the appropriate responsibility and delegated financial authority</li> <li>• All business cases are examined by an Alinta Projects Team, who reviews the applications on behalf of the business.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness criteria	Findings	
2(d)	Commissioning tests are documented and completed	<p>Through discussions with the Manager Operations and consideration of documented procedures, we determined that Alinta, under the terms of the O&amp;M agreement, is reliant on Alcoa to perform/manage the commissioning of assets attached to the cogeneration units.</p> <p>Through discussions with the Alcoa Principal Mechanical Engineer WAO Powerhouse and consideration of Alcoa's commissioning procedures, we observed that those procedures are designed to comply with AS/NZS 3788:2006, including the requirement for completion and full documentation of commissioning tests for all components added to Alcoa's refinery assets, including Alcoa powerhouse and Alinta cogeneration facilities.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
2(e)	Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood	<p>Schedule 1 Part 3 of the O&amp;M agreement provides that Alcoa has responsibility for ensuring that it meets its obligations as an asset operator in accordance with all applicable directives and laws, good engineering and operating practices and insurance policies.</p> <p>Through discussions with the Alcoa Environmental Scientist and the Principal Mechanical Engineer WAO Powerhouse and consideration of Alcoa's environmental and safety procedures and systems, we determined that Alcoa's:</p> <ul style="list-style-type: none"> <li>• Environmental obligations relevant to its WA Powerhouse operations (including Alinta cogeneration facilities) are comprehensively identified and managed by its Environmental Team and recorded on an Environmental, Health and Safety (EHS) aspects and impacts register</li> <li>• Safety obligations relevant to its WA Powerhouse operations are rated as high risk areas within Alcoa's operations. We observed that considerable effort is made to address safety issues at the point of employee induction, through specific and ongoing training, formal assignment of responsibilities to supervisory staff within its powerhouses and use of the Access Hazardous Materials Database. Powerhouse equipment is included in Alcoa's major hazard control and management systems</li> <li>• Health and safety obligations relevant to its WA Powerhouse operations (including Alinta cogeneration facilities) are managed on the EHS aspects and impacts register</li> <li>• Legal obligations relevant to its WA Powerhouse operations primarily relate to environmental and safety matters.</li> </ul> <p>We determined that Alinta utilises the Asset Life Plans (specifically section 1.2) and its in-house legal counsel to address all other legal obligations in relation to its electricity generation works.</p> <p>From an examination of the draft compliance manual and discussions with Alinta's HSSE Manager, we determined that Alinta is currently working with Alcoa to finalise the development of the compliance manual, which is designed to capture all of its legal, environmental and safety requirements as an electricity generation asset owner.</p> <p>The 2008 AMS review report detailed an action plan for Alinta to establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner. This action plan has not yet been completed however is being completed in discrete phases. Refer to issue 6/08 at section 5 of this report for the revised action plan devised by Alinta to address this matter.</p>	
		<b>Adequacy Rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Performing effectively (1)



## 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.

No	Effectiveness Criteria	Findings		
3(a)	Under-utilised and under-performing assets are identified as part of a regular systematic review process	<p>Through discussions with the Manager Operations and consideration of documented procedures, we determined that Alinta, under the terms of the O&amp;M agreement, is reliant on Alcoa to identify under-utilised and under-performing assets. We understand that:</p> <ul style="list-style-type: none"> <li>• Alinta's position is that the assets should be running to capacity subject to IMO requirements</li> <li>• Alcoa report on a daily basis the performance of Alinta's assets, reported as Pinjarra Cogen 1 and 2, and Wagerup</li> <li>• The report is used to assess the performance of its assets and also forms part of the Pinjarra Cogeneration Plant Asset Life Plan</li> <li>• Alinta has implemented a condition monitoring process designed to monitor the plant at a particular point in time which utilises the following Alcoa processes/mechanisms designed to identify under-utilised and under-performing assets: <ul style="list-style-type: none"> <li>○ Asset integrity audits, which are completed on a five yearly basis in accordance with the Alcoa Worldwide Alumina Powerhouse &amp; Plant Utilities Asset Integrity Assessment Protocol. Such audits are designed to determine whether major items of equipment continue to function adequately and where not, to offer recommendations for alternative action</li> <li>○ Asset life assessments, which are completed on a systematic basis</li> <li>○ Loss prevention inspections, as a major aspect of Alcoa's risk management activities directed at powerhouse operations</li> <li>○ Classified plant inspections, which are conducted as per statutory requirements.</li> </ul> </li> </ul> <p>Results of these assessments and inspections are incorporated into the Pinjarra Cogeneration Plant Asset Life Plan.</p>		
		<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"><b>Adequacy Rating:</b> Adequately defined (A)</td> <td style="width: 50%;"><b>Performance Rating:</b> Performing effectively (1)</td> </tr> </table>	<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)			
3(b)	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	<p>Alinta's processes as detailed at 3(a) above enables the collection of relevant asset performance and maintenance data to facilitate assessment of any root causes of any under utilisation or poor performance of powerhouse assets.</p> <p>The results of such assessments are incorporated into the Pinjarra Cogeneration Plant Asset Life Plan, which details the major projects planned for the coming financial year and the life of the asset (at a high level), including any equipment refurbishment, upgrade or replacement.</p>		
		<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"><b>Adequacy Rating:</b> Adequately defined (A)</td> <td style="width: 50%;"><b>Performance Rating:</b> Performing effectively (1)</td> </tr> </table>	<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)			

No	Effectiveness Criteria	Findings	
3(c)	Disposal alternatives are evaluated	Through discussions with the Manager Operations and examination of the Asset Life Plan for Pinjarra, we understand that: <ul style="list-style-type: none"> <li>• Under the Asset and Life Cycle Planning process the plant business plan requires the development of a Financial Plan which includes considerations of disposal costs</li> <li>• The closure plans and costs for Pinjarra cogeneration facilities are currently being developed</li> <li>• The Pinjarra Cogeneration Plant Asset Life Plan references a Decommission Protocol as being currently under development. We confirmed that the Alinta Decommission Protocol had not been developed at the time of this review.</li> </ul>	
		<b>Adequacy rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Opportunity for improvement (2)
<b>Recommendation 2/10</b> Alinta should: <ul style="list-style-type: none"> <li>• Finalise the development of the closure plan and associated costs for Pinjarra cogeneration facilities</li> <li>• Develop and formally implement a Decommission Protocol specifically tailored to its generation assets.</li> </ul>		<b>Action plan 2/10</b> Alinta will: <ul style="list-style-type: none"> <li>• Finalise the development of the closure plan and associated costs for Pinjarra generation facilities</li> <li>• Develop and formally implement a Decommission Protocol specifically tailored to our generation assets.</li> </ul> <b>Responsible Person:</b> Manager Operations <b>Target Date:</b> June 2011	
3(d)	There is a replacement strategy for assets	Through discussions with the Manager Operations and examination of the Pinjarra Cogeneration Plant Asset Life Plan for Pinjarra, we understand that: <ul style="list-style-type: none"> <li>• The replacement strategies for the Pinjarra cogeneration facilities are built into the long term financial plans</li> <li>• The Pinjarra Cogeneration Plant Asset Life Plan refers to a mid life refit (refer to s.2) and graphs the capital profile to indicate the costs and timing of the replacement (refer to s.2.8).</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

## 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>Schedule 1, Part 3, Section 3 of Alinta's O&amp;M agreement with Alcoa relates to Alcoa's relevant obligations with regards to safety and the environment.</p> <p>Through discussions with the Alcoa Environmental Scientist (who is also responsible for Pinjarra refinery environmental activities) and examination of applicable procedures, we determined that Alcoa (on Alinta's behalf) has developed a risk based management system to identify and assess opportunities and threats to the system environment. Alcoa has developed an Environmental Aspects and Impacts procedure, which is designed to:</p> <ul style="list-style-type: none"> <li>• Facilitate the identification and assessment of risks associated with Alcoa's operations (including powerhouse operations)</li> <li>• Ensure systematic review of environmental aspects and impacts</li> <li>• Align to ISO 14001, Dangerous Goods regulations and health and safety requirements</li> <li>• Outline the method of logging, maintaining and reporting on environmental aspects and associated impacts.</li> </ul> <p>Through discussions with the Alcoa Environmental Scientist and Alinta's HSSE Manager and consideration of the aspects and impacts procedure, we determined that:</p> <ul style="list-style-type: none"> <li>• An aspects and impacts register has been developed to identify all activities of the powerhouse and associated risks. The risks are then assessed by the Alcoa Environmental Team located at Pinjarra. This assessment leads to a focused plan for monitoring circumstances, which is reviewed annually</li> <li>• The register is designed to record relevant information relating to the perceived risks including the process (e.g. boiler), the activity (e.g. generation of steam), environmental aspect of operations (e.g. using gas, using large turbines), environmental impact of operations (e.g. noise, depletion of a finite resource), environmental materials, emergency potential (either Yes or No), risk rating with and without controls, corrective action plan, responsible person and the due date</li> <li>• Risks and incidents can be logged by any employee/contractor onto the Environmental, Health and Safety Incident Management System (EHSIMS) 'environmental incident' system, which are then assessed by the Environmental Team</li> <li>• Incidents logged via the EHSIMS are reviewed at daily Powerhouse and refinery meetings for each site.</li> </ul>
		<p><b>Adequacy Rating:</b> Adequately defined (A)</p> <p><b>Performance Rating:</b> Performing effectively (1)</p>

No	Effectiveness Criteria	Findings	
4(b)	Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved	<p>The Alcoa Environmental Scientist advised that Alcoa has engaged a third party consulting firm that assesses sites' emissions against expected performance.</p> <p>Alinta's O&amp;M Agreement requires Alcoa to report on key environmental aspects on a monthly basis which are incorporated into Alinta's management reports. Environmental matters relevant to Alinta's generation operations are accommodated through established Alcoa WAO environmental management mechanisms, through which performance standards specific to Alinta's cogeneration facilities are identified and managed.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
4(c)	Compliance with statutory and regulatory requirements	<p>Alinta is reliant on Alcoa to maintain an effective asset management system (via the O&amp;M Agreement). To assist Alinta in demonstrating compliance with regulations and codes to which the Pinjarra generation facility is subject, Alinta has developed a Compliance Manual. The Compliance Manual provides an overview of the compliance related activities at Pinjarra to further enhance Alinta's ability to continue to operate safely and in compliance with its obligations under an array of laws, regulations, standards and authorisations.</p> <p>Alcoa, as the operator of the asset management system on Alinta's behalf, has established the procedure "Evaluation of Compliance with Environmental Legislation and Regulations (WAO)", which requires the periodic evaluation of compliance with relevant environmental legislation and regulations. To facilitate monitoring of regulatory and legislative requirements, Alcoa has engaged Freehills to monitor environmental legislative updates. An update report is produced on a quarterly basis and sent to Alcoa to communicate any changes in legislation. These changes are then incorporated onto a compliance list that details all of Alcoa's obligations.</p> <p>Alcoa has maintained the ISO-14001 standard and as such is required to maintain an effective Environmental Management System (EMS) that monitors all obligations that have an environmental focus. To ensure that Alcoa is performing appropriately against the legislative requirements, there are three different types of audits conducted:</p> <ul style="list-style-type: none"> <li>• Internal audit process conducted by a contractor who visits each department/operational unit and audits against the ISO standard. The findings are placed on an audit action plan on the Business Improvement System</li> <li>• For Alcoa to maintain its ISO status, it is required to be re-certified every three years via a full audit conducted by an external practitioner. Alcoa's three sites were re-certified in 2010. A surveillance audit/monitoring action is also completed every year</li> <li>• Ministerial audits conducted by the HSSE Manager and reported directly to the WA Environment Minister.</li> </ul> <p>Alcoa also operates and monitors its operations in accordance with the following statutory legislation and licences:</p> <ul style="list-style-type: none"> <li>• Environmental Operating Licence – Alcoa is the holder of the Licence for the Pinjarra generation facilities</li> <li>• Mines Safety and Inspection Regulations</li> <li>• WA Gas Standards (Gas fitting &amp; Consumer Gas Installations) Regulations 1999</li> <li>• Environmental Noise Regulations licence - specifies the maximum night and day noise levels as measured at the boundary.</li> </ul>	

No	Effectiveness Criteria	Findings	
		<p>The 2008 AMS review report detailed an action plan for Alinta to establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner. This action plan has not yet been completed however is being completed in discrete phases. Refer to issue 6/08 at section 5 of this report for the revised action plan devised by Alinta to address this matter.</p>	
		<b>Adequacy Rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Opportunity for improvement (2)
4(d)	Achievement of customer service levels	<p>Other than in the supply of steam and electricity to Alcoa as part of its commercial obligations, Alinta does not have specific customer service levels to attain in relation to its power operations. In the context of its obligations to the community, Alcoa operates and monitors its operations of the Alinta cogeneration units in accordance with the statutory legislation and licences detailed at 4(c) above.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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	Alinta's O&M Agreement requires Alcoa to operate a functioning asset management system. Through discussions with the Alcoa Principal Mechanical Engineer WAO Powerhouse and examination of documented policies, procedures and protocols, we observed that Alcoa has: <ul style="list-style-type: none"> <li>Comprehensively documented policies, procedures and protocols for each powerhouse site (including Alinta facilities) designed to facilitate the effective operation of powerhouse assets. All powerhouse related policies, procedures and protocols are documented within the Alcoa WAO Performance Support System</li> <li>Developed procedures which specifically refer to required service levels (where appropriate) for the operation of the specific item of equipment, or specific electrical or mechanical procedures</li> <li>Developed control plans for major items of plant for each powerhouse.</li> </ul>
		<table border="1"> <tr> <td><b>Adequacy Rating:</b> Adequately defined (A)</td> <td><b>Performance Rating:</b> Performing effectively (1)</td> </tr> </table>
<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)	
5(b)	Risk management is applied to prioritise operations tasks	Alcoa, as the asset operator for Alinta's cogeneration units applies risk management practices with regards to asset operations. Through discussions with the Alcoa Principal Mechanical Engineer WAO Powerhouse and consideration of Alcoa's risk management practices and operational activities, we determined that Alcoa's operational methodology is designed to: <ul style="list-style-type: none"> <li>Use risk based processes to manage its powerhouse assets</li> <li>Perform maintenance tasks the sequence of maintenance task priorities being people &amp; safety first, followed by environment, then customer. These processes are further described at "8. Risk Management" below.</li> </ul> <p>The 2008 AMS review report detailed an action plan for Alinta to work with Alcoa to prioritise and action outstanding punch list items. This action plan has not yet been completed however substantial progress has been made to address the highest priority punch list items. Refer to issue 2/08 at section 5 of this report for the revised action plan devised by Alinta to address this matter.</p>
		<table border="1"> <tr> <td><b>Adequacy rating:</b> Requires some improvement (B)</td> <td><b>Performance Rating:</b> Opportunity for improvement (2)</td> </tr> </table>
<b>Adequacy rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Opportunity for improvement (2)	

No	Effectiveness Criteria	Findings	
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>Alcoa (on Alinta's behalf) manages powerhouse equipment through its online Alcoa wide electronic asset maintenance system, eAM. The eAM system contains the following information for major equipment:</p> <ul style="list-style-type: none"> <li>• Unique asset identification (asset ID)</li> <li>• Equipment details (including type, location, components, operational capacity, age, expected life)</li> <li>• Equipment history, including condition</li> <li>• Maintenance procedures</li> <li>• Maintenance intervals</li> <li>• Purchase cost, depreciation rates and net book value.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
5(d)	Operational costs are measured and monitored	<p>Through discussion with the Manager Operations and examination of Alinta's reporting processes, we determined that:</p> <ul style="list-style-type: none"> <li>• Alinta requires, in accordance with the O&amp;M Agreement, a monthly report detailing the operational costs incurred, expenditure under the O&amp;M and capital expenditure from Alcoa</li> <li>• Alcoa's reports are incorporated into Alinta's management reports on a monthly basis. Expenditure is specifically reported for Pinjarra cogeneration assets</li> <li>• Monthly management reporting and financial analysis compares powerhouse actual expenditure to budgeted expenditure. Reasons for significant variances are examined and scrutinised by Alinta management accountants with the assistance of Alcoa's designated personnel.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
5(e)	Staff receive training commensurate with their responsibilities	<p>Alcoa utilises a WAO Operator Traineeship Program to ensure its powerhouse operators are fully trained in all key aspects of powerhouse operations (relevant to each individual's position).</p> <p>We observed the use of staff training registers maintained by powerhouse supervisors to keep training and operator tickets of all staff valid and relevant to their responsibilities.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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>Alinta's O&amp;M Agreement requires Alcoa to operate a functioning asset management system. Through discussions with the Alcoa Principal Mechanical Engineer WAO Powerhouse and examination of documented policies, procedures and protocols, we observed that Alcoa has:</p> <ul style="list-style-type: none"> <li>Comprehensively documented policies, procedures and protocols for each of its powerhouse sites designed to facilitate maintenance of the cogeneration assets</li> <li>All powerhouse related maintenance policies, procedures and protocols are documented within the Alcoa WAO Performance Support System. The eAM incorporates major equipment maintenance procedures, equipment details, maintenance intervals, costs and equipment history</li> <li>Developed procedures which specifically refer to required service levels (where appropriate) for the operation of the specific item of equipment, or specific electrical or mechanical procedures.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
6(b)	Regular inspections are undertaken of asset performance and condition	<p>Schedule 1, Part 3, Section 7 of Alinta's O&amp;M Agreement outlines that Alcoa is responsible for all routine, maintenance and repair service in relation to the cogeneration facilities and that maintenance is carried out at scheduled times. This includes:</p> <ul style="list-style-type: none"> <li>Routine, periodic and visual inspection of the facilities</li> <li>Routine and periodic testing of the facilities</li> <li>Routine, scheduled, non-schedule and emergency maintenance and repair</li> <li>Periodic maintenance, shut down and inspection.</li> </ul> <p>Through discussion with Manager Operations, the Technical Specialist and Alcoa's Principal Mechanical Engineer WAO Powerhouse and examination of written procedures and reports, we observed that:</p> <ul style="list-style-type: none"> <li>A structured program is in place for key mechanical and electrical assets (such as turbines, feedwater pumps, transformers, generators, switchgear) to be condition monitored using online vibration monitoring devices and for earthing systems and protection relays to be regularly tested (including partial discharge) to avoid unplanned outages or failures</li> <li>Equipment assessment and inspection reports (e.g. Pinjarra cogeneration Unit 1 major combustion inspection) are generated and made available to staff and management requiring information on equipment condition and performance.</li> </ul> <p>We examined inspection reports performed for the Pinjarra facilities, which indicated that the above maintenance processes are operational.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)



No	Effectiveness Criteria	Findings	
6(c)	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	<p>Through discussion with Alcoa WAO Powerhouse Operations staff and examination of Alcoa's eAM system, we observed that:</p> <ul style="list-style-type: none"> <li>For each cogeneration facility major equipment the eAM system contains plans for scheduled maintenance as well as required emergency and corrective works</li> <li>All maintenance work undertaken is recorded in the eAM system</li> <li>Alcoa's operational requirements lead to emergency and corrective works having the highest priority due to the impact on refinery production</li> <li>Maintenance schedules are monitored.</li> </ul> <p>Through discussions with the Manager Operations and examination of the Pinjarra Cogeneration Plant Asset Life Plan for Pinjarra we determined that:</p> <ul style="list-style-type: none"> <li>Alinta's maintenance philosophy for the cogeneration facilities is to systematically analyse production assets to ensure they are achieving business objectives</li> <li>Maintenance strategies are reviewed on a yearly basis or when there are significant events that affect the assets</li> <li>Section 3.2 of the Asset Life Plan details the inspection history and key results of the cogeneration units for Pinjarra. The Asset Life Plan also details the major life cycle events.</li> </ul> <p>The 2008 AMS review report detailed an action plan for Alinta to work with Alcoa to prioritise and action outstanding punch list items. This action plan has not yet been completed however substantial progress has been made to address the highest priority punch list items. Refer to issue 2/08 at section 5 of this report for the revised action plan devised by Alinta to address this matter.</p>	
		<b>Adequacy rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Opportunity for improvement (2)
6(d)	Failures are analysed and operational/maintenance plans adjusted where necessary	<p>Through discussion with Alcoa WAO Powerhouse Operations staff and walkthrough of Alcoa's Powerhouse operations and maintenance procedures, we observed that those procedures provide for equipment failures to be investigated and where necessary, associated systems to be modified or corrected to reduce the likelihood of the failure to be repeated.</p> <p>We observed evidence of emergency and corrective actions taken following root cause analyses of failure events such as a trip or fail-to-start. We observed that where the failure required adjustments to the maintenance procedure, the adjustment was effected.</p>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
6(e)	Risk management is applied to prioritise maintenance tasks	<p>Alcoa, as the asset operator for Alinta's cogeneration units applies risk management practices with regards to asset operations. Through discussions with the Alcoa Principal Mechanical Engineer WAO Powerhouse and consideration of Alcoa's risk management practices and operational activities, we determined that Alcoa's operational methodology is designed to:</p> <ul style="list-style-type: none"> <li>Use risk based processes to manage its powerhouse assets</li> <li>Perform maintenance tasks the sequence of maintenance task priorities being people &amp; safety first, followed by environment, then customer. These processes are further described at "8. Risk Management" below.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness Criteria	Findings	
6(f)	Maintenance costs are measured and monitored	<p>Through discussion with the Manager Operations and examination of Alinta's reporting processes, we determined that:</p> <ul style="list-style-type: none"> <li>• Alinta requires, in accordance with the O&amp;M Agreement, a monthly report detailing the maintenance costs incurred, expenditure under the O&amp;M and capital expenditure from Alcoa</li> <li>• Alcoa's reports are incorporated into Alinta's management reports on a monthly basis. Expenditure is specifically reported for Pinjarra cogeneration assets</li> <li>• Monthly management reporting and financial analysis compares powerhouse actual expenditure to budgeted expenditure. Reasons for significant variances are examined and scrutinised by Alinta management accountants with the assistance of Alcoa's designated personnel.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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 discussion with the Alcoa Manager – Regional IS Australia and consideration of Alcoa’s Oracle support arrangement with its Global Support Centre (GSC), we observed that:</p> <ul style="list-style-type: none"> <li>• Technical documentation for Oracle application systems, which includes eAM, are managed and maintained by GSC</li> <li>• A service level agreement is in place to cover the services provided by GSC to Alcoa</li> <li>• User guides are kept up to date by the Functional Support Representative and key users</li> <li>• Documents are stored in the Alcoa Performance Support System (APSS) to provide document version control.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
7(b)	Input controls include appropriate verification and validation of data entered into the system	<p>Through discussion with the Alcoa Manager – Regional IS Australia and consideration of Alcoa’s ASAT testing of controls over its information systems interfaces, we observed that:</p> <ul style="list-style-type: none"> <li>• Input controls are managed through built-in checks in Oracle 11i and manual processes. The eAM system is part of the Oracle E-Business Suite (EBS)</li> <li>• Processes are in place to verify and validate data entered into the eAM 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.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness Criteria	Findings	
7(c)	Logical security access controls appear adequate, such as passwords	<p>Through discussions with the Alcoa Manager – Regional IS Australia and consideration of Alcoa’s security policies, we observed that:</p> <ul style="list-style-type: none"> <li>• Alcoa’s processes and procedures provide for all users to be assigned a unique user account and passwords that adhere to Alcoa’s Security Standards. Account password requires a minimum of 7 characters with a mixture of alphabets and numerical characters</li> <li>• Passwords for the Oracle environment, to which eAM belongs, is synchronised to the Windows environment using a password management tool</li> <li>• The Security Access Permissions documents the standards, which defines how access is granted and permissions are managed</li> <li>• The standards mentioned above are based on Alcoa’s Security Access Policy (Australia).</li> </ul> <p><b>Adequacy Rating:</b> Adequately defined (A)      <b>Performance Rating:</b> Performing effectively (1)</p>	
7(d)	Physical security access controls appear adequate	<p>Through discussions with the Alcoa Manager – Regional IS Australia and consideration of Alcoa’s security policies and results of Alcoa’s ASAT testing of physical security controls, we observed that:</p> <ul style="list-style-type: none"> <li>• Physical access to the data centre is restricted and logged through the use of swipe cards</li> <li>• Access cards are returned to Building Management and access is revoked on the termination of an employee</li> <li>• Access to the data centre is reviewed on a quarterly basis by the Data Centre Manager</li> <li>• Contractors are always accompanied by appropriate IT personnel when entering the data centre.</li> </ul> <p>We noted that Alcoa has instigated precautions to contain fire and other damaging events in its Data Centre. There are fire extinguishers located within as well as nearby the data centre. Temperature, humidity and flood sensors can be found in the room and notification is sent to the building facility management if any of the sensors are triggered. A VESDA system, which provides advance fire warning and detection to avoid suppression release, is installed for the room and is connected to the main building control panel.</p> <p><b>Adequacy Rating:</b> Adequately defined (A)      <b>Performance Rating:</b> Performing effectively (1)</p>	
7(e)	Data backup procedures appear adequate	<p>Through discussions with the Alcoa Manager – Regional IS Australia and consideration of Alcoa’s backup and recovery procedures, we observed that:</p> <ul style="list-style-type: none"> <li>• Backups of production data occurs on a daily basis</li> <li>• EBS data, which includes eAM, is mirrored to another set of disks before being transferred to backup tapes overnight</li> <li>• Backup tapes are collected and stored off-site by Recall</li> <li>• The data restoration from the previous annual disaster recovery exercise was conducted successfully where data was recovered from backup tapes to a development environment in Pinjarra</li> <li>• Alcoa’s ASAT testing for backup processes is now managed by the Pittsburgh office.</li> </ul> <p><b>Adequacy Rating:</b> Adequately defined (A)      <b>Performance Rating:</b> Performing effectively (1)</p>	

No	Effectiveness Criteria	Findings	
7(f)	Key computations related to licensee performance reporting are materially accurate	For the purpose of reporting to the Authority in accordance with its Licence requirements, Alinta (nor Alcoa on Alinta's behalf) does not directly extract data from the Alcoa eAM system and is not directly reliant on computations from that system.	
		<b>Adequacy Rating:</b> Not rated	<b>Performance Rating:</b> Not rated
7(g)	Management reports appear adequate for the licensee to monitor licence obligations	To date, Alinta's monitoring of its licence obligations has been limited to annual compliance and performance reports to the Authority. This asset management system review and the recent performance audit undertaken by Deloitte provide further understanding of Alinta's licence obligations. We observed that in 2009, Alinta's management reporting structure and processes were redesigned to enable Alinta to specifically monitor and report on its licence obligations, where necessary with input from Alcoa.	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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 from asset planning strategies:** 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>Through discussions with the Manager Operations, examination of the Pinjarra Cogeneration Plant Asset Life Plan and consideration of Alinta's risk management practices, we observed that:</p> <ul style="list-style-type: none"> <li>• Alinta's Risk Management Policy states that Alinta is committed to the implementation of a sound system of risk oversight, management and internal control for business operations, and the necessary culture, processes and structures to facilitate realisation of our business objectives</li> <li>• Alinta's risk management processes require project risks to be assessed prior to the acceptance of the project and monitored during the life of the asset. The Pinjarra Cogeneration Plant Asset Life Plan documents the risks of the operating equipment and associated inherent risk</li> <li>• Operationally, Alinta is reliant on Alcoa, as the operator of the asset management system to perform risk management tasks associated with the asset management system. We understand that Alcoa's vision is to integrate world's best practice in risk management to support and enhance business activities in all areas of its operations. Within the application of the Alcoa Business System, Alcoa intends to ensure risk management is a fundamental aspect of its decision-making processes</li> <li>• Alcoa (on Alinta's behalf) has developed risk management policies and procedures designed to align the Standard AS/NZS 4360:2004. The policy outlines the criteria for risk assessments and the steps in the risk management process. The process specifically steps through: <ul style="list-style-type: none"> <li>○ Establishing the context</li> <li>○ Identifying risks</li> <li>○ Examining controls</li> <li>○ Evaluating the risk</li> <li>○ Establishment of risk treatment plans</li> <li>○ Monitor and review of risks on a periodic basis.</li> </ul> </li> <li>• For all Major Hazard equipment at each refinery site (including Powerhouse boilers, turbine alternators, deaerator, Cogen units), there are Major Hazard equipment single point accountability personnel (<b>SPAs</b>) in the areas of Operations, Maintenance and Engineering. These personnel, delegated by the WAO Powerhouse Manager, are jointly responsible for managing the critical controls surrounding Major Hazard equipment (including Change Control procedures)</li> </ul>
		<p><b>Adequacy Rating:</b> Adequately defined (A)      <b>Performance Rating:</b> Performing effectively (1)</p>

No	Effectiveness Criteria	Findings	
8(b)	Risks are documented in a risk register and treatment plans are actioned and monitored	<p>Through discussion with the Alcoa Principal Mechanical Engineer WAO Powerhouse and examination of the Alcoa risk management procedure, we determined that:</p> <ul style="list-style-type: none"> <li>• The primary tool used by Alcoa WAO Powerhouse operations to capture risks related to its powerhouses is the insurance loss prevention reviews and associated recommendation summaries prepared for each powerhouse</li> <li>• The risk management process provides a methodology to assess and mitigate risks identified in Alcoa's operating environment</li> <li>• Those recommendation summaries are compiled to represent a live risk register for each site, with the recommendation assigned to a responsible person with the status expected to be reviewed and updated every three to four months</li> <li>• Alcoa maintains an aspects and impacts register, which specifically documents risks relating to environment health and safety concerns of the Powerhouse operations</li> <li>• The Pinjarra Cogeneration Plant Asset Life Plan documents the risks of the operating equipment and associated inherent risk.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
8(c)	The probability and consequences of asset failure are regularly assessed.	<p>Through discussion with the Alcoa Principal Mechanical Engineer WAO Powerhouse and review of relevant supporting documentation, we observed that Alcoa (on Alinta's behalf) has applied the following mechanisms for identifying consequence and likelihood of powerhouse asset failure (as per Asset Planning s.1(g)):</p> <ul style="list-style-type: none"> <li>• Asset integrity audits, which are completed on a five yearly basis, per the Powerhouse &amp; Plant Utilities Asset Integrity Assessment Protocol. The next integrity audit is scheduled for late 2011</li> <li>• Loss prevention inspections, as a major aspect of Alcoa's risk management activities directed at powerhouse operations</li> <li>• Classified plant inspections, which are conducted as per statutory requirements.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

## 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>Alinta's O&amp;M agreement with Alcoa includes provision for outages and emergencies, stating that Alcoa will take such action as may be reasonable and necessary to prevent, avoid or mitigate injury, damage or loss.</p> <p>Through discussion with the Alcoa Principal Mechanical Engineer WAO Powerhouse and Alcoa Risk Manager and examination of relevant supporting documentation, we observed that:</p> <ul style="list-style-type: none"> <li>• As part of Alcoa's overall business continuity management framework, Alcoa has developed a series of system recovery plans, including black/brown start procedures for each powerhouse, in the event of a major failure of site assets or key systems</li> <li>• Alcoa's business continuity plans include: <ul style="list-style-type: none"> <li>○ Mechanical Engineering contingency plan (June 2009)</li> <li>○ Operations resources contingency plan, including a resourced roster for each site to enable the continuation of operations in the event of any industrial action</li> </ul> </li> <li>• System recovery plans are subject to a detailed review when triggered by a major equipment change or reconfiguration, and otherwise subject to high level review through the bi-annual Loss Prevention inspection process. Where relevant and possible, system recovery plans are subject to testing in accordance with timeframes specified in the relevant plan</li> <li>• Alcoa's powerhouse workforce is specifically resourced and trained to respond to powerhouse equipment losses, to minimise the interruption to operations</li> <li>• Alinta has plans to secure fuel supply in the event of curtailment of gas.</li> </ul> <p>We observed evidence of Alcoa's review and testing of system recovery and restart plans.</p>
		<p><b>Adequacy Rating:</b> Adequately defined (A)</p> <p><b>Performance Rating:</b> 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	<p>Through discussions with the Planning and Analysis Manager and the Manager Operations and consideration of Alinta's planning processes, we determined that Alinta has the following procedures in place to develop financial plans</p> <ul style="list-style-type: none"> <li>The financial objectives and strategies of the WA Operations business are driven by Alinta Energy's overall corporate objectives set by the national organisation and cascaded down through the business units</li> <li>Alinta's O&amp;M Agreement requires Alcoa to submit financial plans for operating and maintaining the Alinta's cogeneration facilities. Once approved by Alinta, these details are then rolled into Alinta's planning mechanisms</li> <li>WAO operations are required to submit a plan and budget that cover operating costs, maintenance requirements and other administrative costs. The maintenance plan is determined based on scheduled work for major items plus base workload linked to Asset Life Plans. Data is sourced from the maintenance system and with reference to the five year plan for each powerhouse.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
10(b)	The financial plan identifies the source of funds for capital expenditure and recurrent costs	<p>Through discussions with the Planning and Analysis Manager and the Manager Operations and consideration of Alinta's Asset Life Plans, we determined that Alinta options for funding its electricity generation activities remain a component of the overall commercial considerations in operating and maintaining the relevant assets.</p> <p>Through discussions with the Planning and Analysis Manager and consideration of Alinta's planning processes, we observed that:</p> <ul style="list-style-type: none"> <li>Individual powerhouse plans form part of the WA Operations plans, which are rolled up into the Alinta Sales financial planning arrangements and subsequently into the Alinta Energy plans</li> <li>Financial plans are submitted to Alinta Energy for interrogation to determine viability and appropriateness of the request. The plan is then approved by Alinta Energy, if it is considered appropriate.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness Criteria	Findings	
10(c)	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	<p>Through discussions with the Planning and Analysis Manager and consideration of Alinta's planning processes, we observed that:</p> <ul style="list-style-type: none"> <li>The annual budget pack developed by Alinta includes a balance sheet and statement of profit and loss, which incorporates financial plans submitted by Alcoa and Alinta WA Operations</li> <li>Although projections of operating statements and statement of financial position do not occur specifically at the powerhouse level, those projections take account of powerhouse operations as part of the entire WA Operations business projections</li> <li>Budgets and management reporting is broken down to the Powerhouse level. Primarily, reporting to the powerhouse is in relation to costs under the O&amp;M</li> <li>Projections of operating statements and statements of financial position are submitted at a detailed level for the next year, with higher level projections for a further two years also submitted.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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	<p>Through discussions with the Planning and Analysis Manager and consideration of Alinta's financial planning mechanisms, we observed:</p> <ul style="list-style-type: none"> <li>Alinta develops detailed full two year financial plans and accommodates forecasts for up to five years, in accordance with the relevant asset life cycle</li> <li>Plans are broken down into O&amp;M expenditure, capital expenditure and other administrative costs</li> <li>Financial plans are incorporated into the Asset Life Plan for Pinjarra</li> <li>O&amp;M and capital expenditure is considered on a monthly basis in the Alinta management reports.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
10(e)	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	<p>Through discussions with the Planning and Analysis Manager and examination of an extract from the 2011 financial plans, we determined that:</p> <ul style="list-style-type: none"> <li>Alcoa is required to submit a plan that covers operation and maintenance requirements and other administrative costs</li> <li>The financial plan for WA operations considers staffing, resource and maintenance requirements. The plan is supported by the capital expenditure plan which outlines projects and associated expenditure over a ten year timeframe. This information is captured within the Asset Life Plan for Pinjarra.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)

No	Effectiveness Criteria	Findings	
10(f)	Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary	<p>Through discussions with the Planning and Analysis Manager and examination of financial analysis documentation, we observed:</p> <ul style="list-style-type: none"> <li>• Operational and maintenance cost reports are produced by Alcoa on a monthly basis</li> <li>• A variance report is produced on a monthly basis for Pinjarra cogeneration facilities, enabling management to specifically assess powerhouse actual v budgeted expenditure, identify areas that are over budget or problematic and to determine necessary corrective action</li> <li>• The Alinta management accountants review the analysis and liaise with Alcoa to determine reasons for cost variances. Any significant changes are reviewed and incorporated into the Asset Life Plan as appropriate.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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	<p>Through discussions with the Planning and Analysis Manager and the Manager Operations and consideration of Alinta's capital planning procedures, we determined that Alinta has the following procedures in place to develop a capital plan:</p> <ul style="list-style-type: none"> <li>• Capital expenditure approval templates are used to identify capital expenditure amounts required for a particular project. The approved capital expenditure amounts form part of the capital plans, and facilitate the update of the full year forecasts. Alcoa, under the O&amp;M, utilise the approval forms to request capital required to undertake works on the assets</li> <li>• As part of a capital expenditure approval template, there is linkage to the location's strategic plan, which includes asset replacement and cost reduction strategies. The request also requires detailed outline of the expenditure required</li> <li>• Capital projects are identified by location and are assigned responsible owners. The capital projects are tracked and reported on a monthly basis</li> <li>• Under the O&amp;M agreement, Alcoa is required to submit separate capital plans for Pinjarra and Wagerup generation units detailing expenditure for the next 3 years</li> <li>• The Alcoa capital expenditure plan is reviewed by Alinta and incorporated into the capital plans.</li> </ul> <p>On a monthly basis, capital expenditure progress is reported within the management reports and the Asset Life Plans are updated to reflect capital requirements.</p>
		<p><b>Adequacy Rating:</b> Adequately defined (A)</p> <p><b>Performance Rating:</b> Performing effectively (1)</p>

No	Effectiveness Criteria	Findings	
11(b)	The plan provides reasons for capital expenditure and timing of expenditure	<p>Through discussions with the Planning and Analysis Manager, consideration of Alinta's capital planning procedures and examination of the capital expenditure plan for Alinta's Pinjarra cogeneration assets, we determined that:</p> <ul style="list-style-type: none"> <li>• The capital expenditure plan outlines individual capital projects detailing the period in which an expenditure amount is planned and reasons for the expenditure. The capital expenditure plans also highlight the project objectives and benefits of completing</li> <li>• As part of the business case approval process, the following are elements that are required to be identified, which support the reasoning and timing of the expenditure: <ul style="list-style-type: none"> <li>○ The reasons for instigating new projects (e.g. environmental considerations) i.e. the business case</li> <li>○ Financial and capital requirements</li> <li>○ Current state assessment and timeline for the project and expected expenditure timing.</li> </ul> </li> <li>• The business case templates are used as the supporting documentation (once approved) that feed into the capital plan for site operations.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> Performing effectively (1)
11(c)	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	<p>Through discussions with the Planning and Analysis Manager, consideration of Alinta's capital planning procedures and examination of the capital expenditure plan for Alinta's Pinjarra cogeneration assets, we observed that:</p> <ul style="list-style-type: none"> <li>• Section 2.0 of the Pinjarra Cogeneration Plant Asset Life Plan provides a statement of estimate of Life of Plant which is mapped to the capital requirements of the assets</li> <li>• Alinta's (with Alcoa's input) procedures address the requirement for life cycle costs of Pinjarra cogeneration assets to be assessed and recorded in formal project evaluations (as per 1(d))</li> <li>• Alinta's procedures address the requirement for investment and capital expenditure estimates to be calculated and disclosed within the business case approval process (as per 2(b))</li> <li>• Alinta's rolling capital expenditure plans accommodate capital projects identified through the business's strategic, business and location/facility planning (as per 11(a)).</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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 Manager Operations and the Planning and Analysis Manager and examination of the capital expenditure plan for Alinta's Pinjarra cogeneration assets, we observed that:</p> <ul style="list-style-type: none"> <li>• Each year (and on a project by project basis), the capital plan is reviewed to ensure consistent alignment with current business and strategic plans. The Pinjarra Cogeneration Plant Asset Life Plan is then updated to reflect current approved plans</li> <li>• On a monthly basis, Alcoa submit reports to Alinta detailing expenditure. Alinta's WA Operations review expenditure and incorporate into the management reports and Asset Life Plans to facilitate a review of the progress of their capital program, with updated forecast to project and year end</li> <li>• In accordance with project close-out procedures, Alinta reviews the project against the approved criteria to test whether the project objectives were met.</li> </ul>	
		<b>Adequacy Rating:</b> Adequately defined (A)	<b>Performance Rating:</b> 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>Through discussions with the Manager Operations and examination of the Pinjarra Power Station Asset Life Plan, we determined that:</p> <ul style="list-style-type: none"> <li>The Asset Life Plan is intended to be a 'live document', to be updated on a frequent basis, incorporating information as Alinta staff become aware (e.g. financial results, timing of maintenance, trips of the assets, effect on the equivalent operational hours). The revised and updated Pinjarra Power Station Asset Life Plan is still in draft and has not yet been formally approved and accepted by the business</li> <li>The Manager Operations is designated as the responsible person of the Asset Life Plan and as such is responsible for its update to be consistent with current operations</li> <li>The Asset Life Plan is scheduled for review on an annual basis</li> <li>The Manager Regulatory Affairs is designated as the responsible person for monitoring compliance with regulatory requirements.</li> </ul> <p><i>Refer to issue 1/10 above relating to the formalisation and approval of Pinjarra Asset Life Plan.</i></p>	
		<b>Adequacy Rating:</b> Requires some improvement (B)	<b>Performance Rating:</b> Performing effectively (1)
12(b)	Independent reviews (e.g. internal audit) are performed of the asset management system	<p>Through discussions with the Manager Operations and examination of the Asset Life Plan for Pinjarra cogeneration assets, we understand that Alinta has not engaged an independent party to perform a review on the asset management system for Pinjarra cogeneration facilities. We also note that the Pinjarra Cogeneration Plant Asset Life Plan does not currently document the requirement for an independent review to be conducted.</p>	
		<b>Adequacy Rating:</b> Requires significant improvement (C)	<b>Performance Rating:</b> Corrective action required (3)
<p><b>Recommendation 3/10</b> Alinta should:</p> <ul style="list-style-type: none"> <li>Schedule an independent review of the asset management system</li> <li>Update the Pinjarra Cogeneration Plant Asset Life Plan to reflect the requirement of an independent review being conducted.</li> </ul>		<p><b>Action plan 3/10</b> Alinta will:</p> <ul style="list-style-type: none"> <li>Schedule an independent review of the asset management system</li> <li>Update the Pinjarra Power Station Asset Life Plan to reflect the requirement for an independent review to be conducted.</li> </ul> <p><b>Responsible Person:</b> Manager Operations <b>Target Date:</b> June 2011</p>	

# 5 Follow-up of previous review action plans

Rec. No	Ref	Recommendation	Previous Review Action Plan	Status	Revised action plan (if applicable)
1/08	5 6	The ongoing integration of the Alinta Pinjarra cogeneration units into Alcoa's operations and maintenance systems be continued and completed through the development of maintenance and operations procedures and inclusion of OEM drawing into Alcoa's maintenance drawing systems.	Alinta will work with Alcoa (through the Procurement Specialist – Energy) to ensure that the Pinjarra cogeneration units are integrated into Alcoa's operations and maintenance systems, and complemented through the development of maintenance and operations procedures and inclusion of OEM drawing into Alcoa's maintenance drawing systems. <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation <b>Target Date:</b> 31 July 2009	<b>In progress</b> Substantial progress has been made to develop operations and maintenance procedures to facilitate the integration of Alinta's Pinjarra facility into Alcoa operations and systems, including the completion of Core Asset Strategies and OEM drawings. A small number of low priority, low risk OEM drawings for Unit 2 require incorporation into Alcoa's maintenance drawing systems.	Alinta will work with Alcoa to close out the remaining OEM drawings for Unit 2, which require incorporation into Alcoa's maintenance drawing system. <b>Responsible Person:</b> Manager Operations <b>Target Date:</b> June 2011
2/08	5 6	Alinta prioritise and accordingly action outstanding punch list items identified in the Pinjarra Cogeneration July 2008 Monthly report (or the most current, equivalent report). Demonstrated compliance with statutory requirements should be given the highest priority.	Alinta will work with Alcoa (through the Procurement Specialist – Energy) to prioritise and action outstanding punch list items identified in the Pinjarra Cogeneration July 2008 Monthly report (or the most current, equivalent report). Highest priority will be given to items required to demonstrated compliance with statutory requirements. <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation <b>Target Date:</b> 31 March 2009	<b>In progress</b> 35 punch list items still require action to close out. These items will be closed out during the 2011 Unit 1 Major outage. Budget allocation has been made for these items.	Alinta will work with Alcoa to action the remaining punch list items as part of the 2011 Unit 1 Major Outage. <b>Responsible Person:</b> Manager Operations <b>Target Date:</b> August 2011



Rec. No	Ref	Recommendation	Previous Review Action Plan	Status	Revised action plan (if applicable)
3/08	All	Item 3/08 relates to Wagerup cogeneration facilities. As such, is not considered within this report.	N/A	N/A	N/A
4/08	All	Alinta consult with Alcoa to ensure that the Alcoa Powerhouse Asset Strategies: <ul style="list-style-type: none"> <li>Accommodate each of the 12 key processes in the asset management life-cycle</li> <li>Where appropriate, refer to existing Alinta and/or Alcoa asset planning and management processes and procedures, as they apply to powerhouse assets.</li> </ul>	Alinta will work with Alcoa (through the Procurement Specialist – Energy) to ensure that the Alcoa Powerhouse Asset Strategies: <ul style="list-style-type: none"> <li>Accommodate each of the 12 key processes in the asset management life-cycle; and</li> <li>Where appropriate, refer to existing Alinta and/or Alcoa asset planning and management processes and procedures, as they apply to powerhouse assets.</li> </ul> <p><b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs</p> <p><b>Target Date:</b> 31 July 2009</p>	<b>In progress</b> Alinta has received a draft Asset Life Cycle Management Plan from Alcoa, which requires formal update incorporating the 12 key processes of the asset management system.	Alinta will continue to liaise with Alcoa to finalise the Asset Life Cycle Management Plan. <b>Responsible Person:</b> Manager Operations <b>Target Date:</b> March 2011
5/08	All	Alinta consider further amendments to its Transmission Assets Asset Management Strategy documents to ensure they fully accommodate each of the 12 key processes in the asset management life-cycle.	Alinta will liaise with Alcoa (through the Procurement Specialist – Energy) to consider amendments to the Transmission Assets Asset Management Strategy documents to ensure they fully accommodate each of the 12 key processes in the asset management life-cycle. <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation <b>Target Date:</b> 31 July 2009	<b>Closed out</b> Alinta surrendered its Transmission Licence on 20 January 2010; as such the transmission assets are not subject to the requirements of the Licence. The assets will continue to be monitored via Alinta's AMS.	N/A

Rec. No	Ref	Recommendation	Previous Review Action Plan	Status	Revised action plan (if applicable)
6/08	2(e)	Further to Alcoa's records and systems, Alinta establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner.	Alinta will establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner. <b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs <b>Target Date:</b> 31 July 2009	<b>In progress</b> Alinta is competing this action in the following phases: (i) Review of applicable legislation and identification of a list of key obligations. This phase is complete. (ii) Development of tools and completion of a gap analysis. A compliance manual for Pinjarra has been developed and is currently in its third draft. The HSSE Manager is working with Alcoa to finalise the manual (iii) Complete necessary corrective actions.	Alinta will convert the gap analysis into a scheduled action plan. <b>Responsible Person:</b> HSSE Manager <b>Target Date:</b> June 2011
7/08	4(c)	Alinta investigate, understand and comply with the statutory and regulatory noise level requirements for the Pinjarra cogeneration plant.	(a) Since the review, Alinta has replaced the start up vent silencer on Pinjarra Unit 2. A replacement start up vent for Pinjarra Unit 1 is on site and will be installed the week commencing 9 February 2009. The emissions monitoring equipment will be operational following the fitting of a new sampling probe internally in the stack. This will be completed during the next major maintenance outage in August for Unit 1 and November for Unit 2. (b) As per recommendation 6, Alinta will establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner by 31 July 2009. <b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs <b>Target Date:</b> As outlined above	(a) <b>In progress</b> Testing has been completed on the start up vent silencer. Analysis of results is currently being undertaken. Alcoa has installed a probe on Pinjarra Unit 1 to sample test the stack flue gases. The analyser has been purchased and is awaiting installation. Once installed the emissions monitoring equipment can be commissioned. If successful, the system will be installed on Unit 2. (b) <b>In progress</b> Refer to item 6/08 above.	Alinta will: (a) Install (with Alcoa's assistance) the analyser on unit 1 and perform appropriate testing. If successful, install on Unit 2 (b) Undertake the Revised Action Plan for 6/08. <b>Responsible Person:</b> Manager Operations <b>Target Date:</b> June 2011

Rec. No	Ref	Recommendation	Previous Review Action Plan	Status	Revised action plan (if applicable)
8/08	5(a)	Alinta prioritise and fund the development of operational policies procedures for auxiliary equipment.	Alinta will liaise with Alcoa (through the Procurement Specialist – Energy) to develop and maintain operational policies procedures for auxiliary equipment. <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation <b>Target Date:</b> 31 July 2009	<b>Complete</b> Operational procedures have been developed for Pinjarra generation assets. Alcoa continues to review generation processes for any additional policies and procedures that may supplement those completed.	N/A
9/08	5(c)	Alinta auxiliary equipment be added to the Alcoa maintenance database to enable effective prioritisation of maintenance work	Since the review, Alinta has liaised with Alcoa to add Alinta's auxiliary equipment to the Alcoa maintenance database to facilitate effective prioritisation of maintenance work. <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation <b>Target Date:</b> Completed	<b>Complete</b> All auxiliary items of plant for the Pinjarra facility have been incorporated into Alcoa's maintenance database.	N/A
10/08	6(d)	Item 10/08 relates to Wagerup cogeneration facilities. As such, is not considered within this report.	N/A	N/A	N/A
11/08	7(g)	Establish a mechanism, which enables Alinta to effectively and continuously monitor its performance against Licence obligations.	Since the review, Alinta and BBP have employed additional staff (Manager Regulatory Affairs and Operations Manager, Western Operations, Power Generation) to enable Alinta to more effectively and continuously monitor its performance against Licence obligations. Alinta will further review existing BBP business processes to ensure they enable Alinta to effectively and continuously monitor its performance against Licence obligations. <b>Responsible Person:</b> Manager Regulatory Affairs <b>Target Date:</b> 31 July 2009	<b>Complete</b> Alinta has established a monthly corporate compliance reporting process which requires each part of the business to confirm compliance with legislative and regulatory obligations, as well as Alinta corporate policies.	N/A

Rec. No	Ref	Recommendation	Previous Review Action Plan	Status	Revised action plan (if applicable)
12/08	12(a) 12(b)	Develop and implement a structured review program, which explicitly accommodates Alinta's electricity generation and transmission asset management systems.	Alinta will liaise with Alcoa (through the Procurement Specialist – Energy) to develop and implement a structured review program for Alinta's electricity generation and transmission asset management systems.  <b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation  <b>Target Date:</b> 31 July 2009	<b>Complete</b>  Alinta has developed an Asset Life Plan for Pinjarra, which requires formal review every 12 months to assess its effectiveness. Asset management systems are also subject to review on an ongoing basis at monthly O&M meetings between Alinta and Alcoa.	N/A

# Appendix A – Review Plan

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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# Appendix B – References

## Key Alinta staff participating in the review

Name	Position
• Corey Dykstra	Manager Regulatory Affairs
• Andrew Nuttman	Manager Operations
• Ian Kirkpatrick	Technical Specialist
• John Chomiak	Financial Controller
• Geoff Massey	HSSE Manager

## Key Alcoa staff participating in the review

Position
• Procurement Specialist – Energy
• Principal Mechanical Engineer WAO Powerhouse
• Principal Electrical Engineer WAO Powerhouse
• Manager – Regional IS Australia
• Environmental Scientist
• Powerhouse Supervisor – Pinjarra.

## Deloitte staff participating in the review

Name	Position	Hours
• Richard Thomas	Partner	2.5
• Andrew Baldwin	Account Director	13
• Ben Fountain	Senior Analyst	34
• Jin Sua	Senior Analyst – IT	2
• Michael Genever	Analyst	5
• Matt Thomson	Partner - QA Review	1
• Don Gillespie	Account Director – QA Review	0.5

## KT & Sai staff participating in the review

Name	Position	Hours
• Tanuja Sanders	Principal Engineer & Director	23.5
• Keith Sanders	Principal Engineer & Director	10.5
• Clive Lancaster	KT & Sai Consultant	7

## Key documents and other information sources examined

### Alinta references

- Operating and Maintenance Agreement with Alcoa of Australia Ltd
- Pinjarra Asset Life Plan
- Sample Alinta Management Reports
- Sample Alcoa Management Reports
- Project management system methodology
- Investigation approval form
- Alinta Business Case template – minor and major projects
- Alinta risk management policy
- Alinta project risk assessment template
- Sample financial plan for Pinjarra
- Sample Alcoa financial plan
- Balance sheet, profit & loss statement and cash flow samples
- Alinta account mapping methodology
- Capital expenditure approval form

### Deloitte: Alinta (Pinjarra) 2010 EGL Asset Management System Review

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- Pinjarra capital expenditure plan
- Sample capital expenditure tracker assigning responsibility
- Sample capital budget vs actual tracker
- Sample cash flow forecast
- Asset and life-cycle management policy
- Electricity Generation Licence (EGL10).

**Alcoa references**

- Expenditure approval policy and procedures
- Environmental aspect and impacts procedure
- Environmental aspect and impacts register
- Screenshots of EHS incident management system
- Pinjarra powerhouse incidents (1 July 2008 to 30 June 2010)
- Identification and access to legal requirements procedure
- Environmental legal update from Freehills
- Evaluation of compliance with environmental requirements procedure
- Security access permissions procedure
- Security access account management procedure
- Daily tape management procedure
- Alcoa Operations Manual for Oracle
- Service Level Agreement with Global Business Services
- Risk management policy
- Risk management overview
- Risk classifications
- Example registered equipment inspection summary
- Pinjarra Powerhouse asset strategy.

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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# Appendix C – Post Review Implementation Plan

## 2010

### Issue 1/10

*Asset planning -1(h) Plans are regularly reviewed and updated*

*Review of AMS - 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*

At the time of our review, we noted that the Pinjarra Cogeneration Plant Asset Life Plan is still in draft and has not been formally accepted by the business.

### Recommendation 1/10

Alinta finalise and formally approve the Pinjarra Cogeneration Plant Asset Life Plan.

### Action Plan 1/10

Alinta will finalise and formally approve the Pinjarra Power Station Asset Life Plan.

**Responsible Person:** Manager Operations

**Target Date:** March 2011

### Issue 2/10

*Asset disposal - 3(c) Disposal alternatives are evaluated*

- The closure plans and associated costs for Pinjarra cogeneration facilities are currently being developed
- The Pinjarra Power Station Asset Life Plan references a Decommission Protocol as being currently under development. We confirmed that the Alinta Decommission Protocol had not been developed at the time of this review.

### Recommendation 2/10

Alinta should:

- Finalise the development of the closure plan and associated costs for Pinjarra cogeneration facilities
- Develop and formally implement a Decommission Protocol specifically tailored to its generation assets.

### Action Plan 2/10

Alinta will:

- Finalise the development of the closure plan and associated costs for Pinjarra generation facilities
- Develop and formally implement a Decommission Protocol specifically tailored to our generation assets.

**Responsible Person:** Manager Operations

**Target Date:** June 2011

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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<p><b>Issue 3/10</b></p> <p><b><i>Review of the AMS - 12(b) Independent reviews (e.g. internal audit) are performed of the asset management system</i></b></p> <p>Alinta has not engaged an independent party to perform a review on the asset management system for Pinjarra generation facilities. We also note that the Pinjarra Power Station Asset Life Plan does not currently document the requirement for an independent review to be conducted.</p>	
<p><b>Recommendation 3/10</b></p> <p>Alinta should:</p> <ul style="list-style-type: none"> <li>• Schedule an independent review of the asset management system</li> <li>• Update the Pinjarra Power Station Asset Life Plan to reflect the requirement for an independent review to be conducted.</li> </ul>	<p><b>Action Plan 3/10</b></p> <p>Alinta will:</p> <ul style="list-style-type: none"> <li>• Schedule an independent review of the asset management system</li> <li>• Update the Pinjarra Power Station Asset Life Plan to reflect the requirement for an independent review to be conducted.</li> </ul> <p><b>Responsible Person:</b> Manager Operations  <b>Target Date:</b> June 2011</p>

## 2008

<p><b>Issue 1/08</b></p> <p><b><i>Asset Operations and Asset Maintenance - Pinjarra</i></b></p> <p>The 2008 review report detailed an action plan for Alinta to monitor Alcoa's integration of the Pinjarra cogeneration units into Alcoa's operations and maintenance systems.</p> <p><b>Status</b></p> <p>Substantial progress has been made to develop operations and maintenance procedures to facilitate the integration of Alinta's Pinjarra facility into Alcoa operations and systems, including the completion of Core Asset Strategies and OEM drawings.</p> <p>A small number of low priority, low risk OEM drawings for Unit 2 require incorporation into Alcoa's maintenance drawing systems.</p>	
<p><b>Original Action Plan 1/08</b></p> <p>Alinta will work with Alcoa (through the Procurement Specialist – Energy) to ensure that the Pinjarra cogeneration units are integrated into Alcoa's operations and maintenance systems, and complemented through the development of maintenance and operations procedures and inclusion of OEM drawing into Alcoa's maintenance drawing systems.</p> <p><b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation</p> <p><b>Target Date:</b> 31 July 2009</p>	<p><b>Revised Action Plan 1/08</b></p> <p>Alinta will work with Alcoa to close out the remaining OEM drawings for Unit 2, which require incorporation into Alcoa's maintenance drawing system.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> June 2011</p>

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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<p><b>Issue 2/08</b></p> <p><b><i>Asset Operations and Asset Maintenance - Pinjarra</i></b></p> <p>The 2008 review report detailed an action plan for Alinta to prioritise and accordingly action outstanding punch list items identified in the Pinjarra Cogeneration July 2008 Monthly report (or the most current, equivalent report).</p> <p><b>Status</b></p> <p>35 punch list items still require action to close out. These items will be closed out during the 2011 Unit 1 Major outage.</p> <p>Budget allocation has been made for these items.</p>	
<p><b>Original Action Plan 2/08</b></p> <p>Alinta will work with Alcoa (through the Procurement Specialist – Energy) to prioritise and action outstanding punch list items identified in the Pinjarra Cogeneration July 2008 Monthly report (or the most current, equivalent report). Highest priority will be given to items required to demonstrated compliance with statutory requirements.</p> <p><b>Responsible Person:</b> Operations Manager, Western Operations, Power Generation</p> <p><b>Target Date:</b> 31 March 2009</p>	<p><b>Revised Action Plan 2/08</b></p> <p>Alinta will work with Alcoa to action the remaining punch list items as part of the 2011 Unit 1 Major Outage.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> August 2011</p>
<p><b>Issue 4/08</b></p> <p><b><i>General Issue - Asset Management Strategies – Generation Assets</i></b></p> <p>The 2008 review report detailed an action plan for Alinta to work with Alcoa to update the Asset Strategy documents to incorporate the 12 asset management cycle processes.</p> <p><b>Status</b></p> <p>Alinta has received a draft Asset Life Cycle Management Plan from Alcoa, which requires formal update incorporating the 12 key processes of the asset management system.</p>	
<p><b>Original Action Plan 4/08</b></p> <p>Alinta will work with Alcoa (through the Procurement Specialist – Energy) to ensure that the Alcoa Powerhouse Asset Strategies:</p> <ul style="list-style-type: none"> <li>• Accommodate each of the 12 key processes in the asset management life-cycle; and</li> <li>• Where appropriate, refer to existing Alinta and/or Alcoa asset planning and management processes and procedures, as they apply to powerhouse assets.</li> </ul> <p><b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs</p> <p><b>Target Date:</b> 31 July 2009</p>	<p><b>Revised Action Plan 4/08</b></p> <p>Alinta will continue to liaise with Alcoa to finalise the Asset Life Cycle Management Plan.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> March 2011</p>

**Deloitte:** Alinta (Pinjarra) 2010 EGL Asset Management System Review

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<p><b>Issue 6/08</b></p> <p><b><i>Asset creation/acquisition 2(e) Ongoing legal/ environmental/safety obligations of the asset owner are assigned and understood</i></b></p> <p>The 2008 review report detailed an action plan for Alinta to establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner.</p> <p><b>Status</b></p> <p>Alinta is completing this action in the following phases:</p> <ul style="list-style-type: none"> <li>(i) Review of applicable legislation and identification of a list of key obligations. This phase is complete.</li> <li>(ii) Development of tools and completion of a gap analysis. A compliance manual for Pinjarra has been developed and is currently in its third draft. The HSSE Manager is working with Alcoa to finalise the manual</li> <li>(iii) Complete necessary corrective actions.</li> </ul>	
<p><b>Original Action Plan 6/08</b></p> <p>Alinta will establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner.</p> <p><b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs</p> <p><b>Target Date:</b> 31 July 2009</p>	<p><b>Revised Action Plan 6/08</b></p> <p>Alinta will convert the gap analysis into a scheduled action plan.</p> <p><b>Responsible Person:</b> HSSE Manager</p> <p><b>Target Date:</b> June 2011</p>

<p><b>Issue 7/08</b></p> <p><b><i>Environmental Analysis 4(c) Compliance with statutory and regulatory requirements</i></b></p> <p>The 2008 review report detailed an action plan for Alinta to investigate, understand and comply with the statutory and regulatory noise level requirements for the Pinjarra cogeneration plant.</p> <p><b>Status</b></p> <p>Alinta is competing this action in the following phases:</p> <p>(a) Testing has been completed on the start up vent silencer. Analysis of results is currently being undertaken. Alcoa has installed a probe on Pinjarra Unit 1 to sample test the stack flue gases. The analyser has been purchased and is awaiting installation. Once installed the emissions monitoring equipment can be commissioned. If successful, the system will be installed on Unit 2.</p> <p>(b) Refer to item 6/08 above.</p>	
<p><b>Original Action Plan 7/08</b></p> <p>(a) Since the review, Alinta has replaced the start up vent silencer on Pinjarra Unit 2. A replacement start up vent for Pinjarra Unit 1 is on site and will be installed the week commencing 9 February 2009. The emissions monitoring equipment will be operational following the fitting of a new sampling probe internally in the stack. This will be completed during the next major maintenance outage in August for Unit 1 and November for Unit 2.</p> <p>(b) As per recommendation 6, Alinta will establish and maintain a full record and understanding of its legal requirements as an electricity generation and transmission asset owner by 31 July 2009.</p> <p><b>Responsible Persons:</b> Operations Manager, Western Operations, Power Generation and Manager Regulatory Affairs</p> <p><b>Target Date:</b> As outlined above</p>	<p><b>Revised Action Plan 7/08</b></p> <p>Alinta will:</p> <p>(a) Install (with Alcoa’s assistance) the analyser on unit 1 and perform appropriate testing. If successful, install on Unit 2</p> <p>(b) Undertake the Revised Action Plan for 6/08.</p> <p><b>Responsible Person:</b> Manager Operations</p> <p><b>Target Date:</b> June 2011</p>