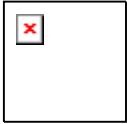


City of Kalgoorlie-Boulder

**Water Operating Licence Audit  
and Asset Management Review**

Final Report



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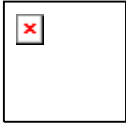
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# 1. Introduction

This Water Licence Audit and Asset Management System review was carried out on the water services at Kalgoorlie-Boulder for the period between 1<sup>st</sup> December 2002 and 30<sup>th</sup> November 2005 in accordance with the requirements of the Economic Regulation Authority. Kalgoorlie-Boulder is located approximately 592 Kilometres east of Perth. The City was established in 1893 as a Gold Rush town and has continued to be a significant centre for mining and minerals processing. The City supports a population of approximately 30,000.

The Water Services Include:

- ▶ Sewerage Scheme, collecting and treating approximately 2.9GL from 9,914 residential and 1,062 non-residential connections. 1.8GL of the greywater is disinfected and reticulated to the sports oval and the Golf Course.

The scope of services and licence compliance requirements are detailed in the City of Kalgoorlie-Boulder Operating Licence, Licence Registration Number IL/4, Licence Version 3 dated 14<sup>th</sup> June 2002. This audit has been prepared in accordance with "The Economic Regulation Authority, Scope and Guidelines for the Water Service Licence: Operational Audit, and Asset Management Review for the City of Kalgoorlie-Boulder (the Licensee) – 1 January 2005".

## 1.1 Scope

The Audit covers the period 1<sup>st</sup> December 2002 and 30<sup>th</sup> November 2005. As it is impractical to review all relevant documents and data over this period, a sample of documents and services/events will be examined in order to establish a thorough appreciation of the operations and assess compliance.

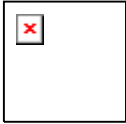
The methodology, order and content of the audit was:

- ▶ Inspection of the facilities, including sewer reticulation, pumping and treatment systems;
- ▶ Review of previous audit documentation and results;
- ▶ Review of Licence Documentation, Asset Management systems, plans etc;
- ▶ Interview with relevant personnel; and
- ▶ Preparation of draft and final report

## 1.2 Documents Reviewed

The following documents, which relate to the water services operations and asset management, were reviewed during the audit.

- ▶ Operational Licence – 14<sup>th</sup> June 2002
- ▶ Customer Services Charter – October 2004
- ▶ 2002 Operational Audit and Asset Management System Review Final Report, SMEC April 2003



- ▶ Complaints, Customer Feedback and Consultation systems.
- ▶ As Constructed Drawings and Plans
- ▶ Annual Report City of Kalgoorlie-Boulder 2003-2004
- ▶ City of Kalgoorlie-Boulder Strategic Plan for the Five Years 2005-2010, incorporating 5 Year Forward Estimates, 8 March 2005
- ▶ Kalgoorlie WWTP – Operations and Maintenance Manuals
- ▶ Relevant correspondence from the City to ERA
- ▶ Licences from DEP and other authorities.
- ▶ South Boulder Wastewater Treatment Plant, Incident Management Plan, Final Draft 2004
- ▶ KPI, Quarterly and Annual Reports (Schedule 2, 3 and 4).

### **1.3 Risk Assessment**

A Risk Assessment completed for the Audit Plan identified only one high risk as the water quality for potable water supplies. Most of the assessments were either low or medium risks with no extreme risks. A copy of the risk assessment is included in Appendix A

### **1.4 Personnel Interviewed**

The following personnel were interviewed on the management, maintenance and operation of the water systems including:

- ▶ The City
  - Mike Bolt – Manager Waste Services
  - Keith Boase – Environmental Officer
  - Reg Franklin – Drawings Management
  - Rob Radosevich - Director of Engineering Services
  - Amanda Hendersen - Accounts

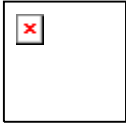
### **1.5 Previous Audit**

The Audit report of 2003 was reviewed and the recommendations and non-compliance issues discussed in the later sections of this report. The Licence has been revised since the previous audit in 2003, with different formats and conditions than the previous Licence. Where possible, the previous audit was compared to the current licence clauses and requirements.

### **1.6 Assessment And Measurement Of Compliance**

The Licensee's compliance with licence requirements was assessed using the following scales:

- A. Exceeds minimum requirement
- B. Meets minimum requirement – no improvement needed



- C. Meets minimum requirement – improvement needed
- D. Does not meet the minimum requirement

In addition, the following rating scale was used in assessing the effectiveness of the key outputs of the Asset Management System.

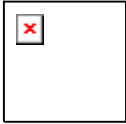
- A. Excellent All key outputs and processes covered and fully demonstrably applied. Systems fully developed and considered appropriate in terms of coverage and application.
- B. Good All key outputs and processes covered and largely developed. System requires some improvements in terms of coverage, processes and/or application.
- C. Largely adequate Most key outputs covered. System requires some improvements in terms of coverage, processes and/or application.
- D. Inadequate System not fully developed. Lacking in key outputs and coverage. Unable to demonstrate application of system.

In addition to the above compliance assessment or in absence of a specific grading, observations and comments were made by the auditor with recommendations for improvement when deemed appropriate.

### 1.7 Audit Time Input

The professional resource requirements for the operations audit and asset management systems review were as follows:

1.	Preparation of the Audit Plan and Risk Assessment	4 hrs
2.	Conduct the Audit and AM Review	12 hrs
3.	Prepare the Draft Report	16 hrs
4.	Review and Amend Draft Report and Prepare Final Report	4 hrs
5.	Total	34 hrs



## 2. Previous Audit

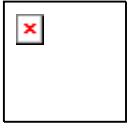
The status of the recommendations from the April 2003 Audit Report by SMEC is shown in the following table. The status of the recommendations demonstrates that some improvement has occurred since the previous audit and review.

### 2.1 Operational Audit

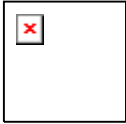
<b>Recommendation</b>	<b>Status</b>
Licensee to inform the Coordinator of the occurrence of overflows within 5 days and a written report within 14 days of a request.	Complete
Sewer blockages per 100 km exceeded the KPI requirements of Schedule 2 (40 per 100 km)	Minor Improvement
Emergency Response times need to be recorded and monitored.	No Improvement
Ensure that maintenance service providers are aware of the Customer Charter	Complete
Inform customers on major changes to the services	Complete
Review the Customer Charter (Dec 97 version)	Complete
Implement a single Complaints Register for all City services	Complete

### 2.2 Asset Management Review

<b>Recommendation</b>	<b>Status</b>
Standard Criteria for determining Life Cycle costs not developed	No Improvement
Comparison of new asset to non asset solution by discounted cash flows.	No Improvement
Assets are not meeting levels of service requirements for sewerage blockages	No Improvement
Implement a systematic documentation of operating and maintenance rules and procedures	Partially Complete
Level of maintenance not justified against the replacement cost.	No Improvement
Assets theoretical life is known	No Improvement
Asset assessment management plan does not provide prediction of asset deterioration of failures	No Improvement
Asset maintenance plans and operational plans relate to levels of services and requirements	No Improvement
Risk Management practice is in the early stages of development	No Improvement



<b>Recommendation</b>	<b>Status</b>
The Capital Investment Plan is not consistent with the asset life and condition identified in the Asset Management Plan	No Improvement
Asset Management Plan reviews are not current	No Improvement
Asset Management Plans are not reviewed at the appropriate intervals.	No Improvement
Asset Management Plan is not current.	No Improvement



### 3. Operating Licence Audit

Mark Bourhill, accompanied by Mike Bolt carried out the inspections on 25<sup>th</sup> and 27<sup>th</sup> October 2005. The inspection provided an overview of systems operations and facilitated access to the facilities.

The wastewater systems were generally in good condition, operated effectively and generally performed within quality requirements. The assets reviewed included:

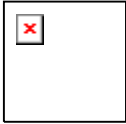
- ▶ Sewerage Services
  - Pump Stations at Throssell Street (Main) and Krygger Street (Minor)
  - Reticulation and pressure mains.
  - Wastewater Treatment Plant (WWTP) – South Boulder
  - Effluent re-use lagoons and outfall system.

The systems are generally in good condition, maintained to an acceptable level and operated effectively. System improvements are planned for the sewer systems, including implementing a conditional appraisal by CCTV of the gravity sewers to address the high blockage rates. Documentation of the “As Constructed” status of the systems has been captured electronically. Operations and maintenance manuals and contingency management plans are available for the WWTP.

The City’s sewage demand profiles have grown steadily in recent years. Further modest growth is predicted during the next five year period as the City responds to the increased mining and minerals processing activities over 2004/2005. This is expected to continue during 2006 and 2007. A number of new residential sub-divisions are currently in construction and further developments are predicted to address shortages of quality housing stocks. The WWTP has adequate capacity to meet the predicted growth. Extension of the gravity sewers and upgrading of the pressure main and pump stations are predicted and will be met from headworks charges.

Planned and breakdown operations and maintenance tasks are completed by the three City plumbers, Barnicott Plumbing (sewer mains and pumps) and Water Corporation (WWTP). Barnicott Plumbing are engaged under a period contract and Water Corporation are engaged under a service agreement. Both arrangements clearly detail the scope of works, key performance indicators and roles and responsibilities of both parties.

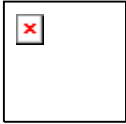




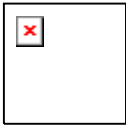
The following information, evidence and inspections were audited for the period:

**Table 1 Operational Audit Checklist**

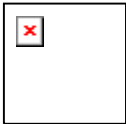
Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
<b>Operating Area Clause 2 (b) Schedule 1</b>	Is it in the correct operating area	Yes - Drawing OWR-OA-028 (B)	B
<b>General duty to provide services Clause 4.</b>	(a) provide the Water Services; and  (b) undertake, maintain and operate any Water Services Works, specified in the Licence.	Yes  Yes	B  B
<b>Regulations prescribing standards of service Clause 5.</b>	The Licensee shall comply with Regulations prescribing standards of service made under section 61 of the Act.	Not Applicable	
<b>Asset management system Clause 6.</b>	(a) The Licensee is to:  (i) provide for an asset management system in respect of the Licensee's Water Service Assets;  (ii) notify details of the system and any changes to it to the Authority, and  (iii) not less than once in every period of 36 months (or such longer period as the Economic Regulation Authority allows), provide the Economic Regulation Authority with a report by an independent expert acceptable to the Economic Regulation Authority as to the effectiveness of the system.	Basics are in place with a works management and asset register system. Asset Management Plans have not been reviewed since 1999.  The City has provided updated information to the Authority during the audit period.  Water Services Audit and Asset Management Review Report for 2003 provided to Economic Regulation Authority.	C  B  B



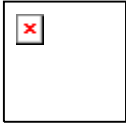
Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
	<p>(b) The asset management system is to set out the measures to be taken by the Licensee for the proper maintenance of Assets used in the provision of Water Services and for the undertaking, maintenance and operation of Water Services works.</p> <p>(c) The Licensee is to undertake, maintain and operate its Water Services Works in accordance with the processes set out in the asset management system.</p> <p>(d) The scope of the asset management system report under paragraph (a) (iii) will be set by the Economic Regulation Authority.</p>	<p>The general requirements for operating and maintaining the system are documented in the Standard Operating Procedures (Jan 2004). Other documentation is scattered and a consolidated asset management system is not yet in place.</p> <p>Generally acceptable level of basic routine maintenance. Limited restoration or refurbishment being done to mains.</p> <p>Letter response to previous operational audit provided to ERA on 12 Jan 04.</p>	<p>C</p> <p>C</p> <p>C</p>
<b>Operational Audit Clause 7.</b>	The Licensee is to, not less than once in every period of 36 months (or such longer period as the Economic Regulation Authority allows), provide the Economic Regulation Authority with an Operational Audit conducted by an independent expert acceptable to the Economic Regulation Authority.	Water Services audited and Asset Management System reviewed by SMEC for the period to 30 October 2002	B
<b>Technical Standards Clause 8</b>	The Licensee is to comply in line with gazetted technical standards	No standards set.	N/A
<b>Industry codes Clause 9.</b>	The Licensee shall observe the <i>Sewerage Code of Australia WSA 02 1999</i> in the design and construction of sewerage systems.	Design of systems complies. Specifications for new works includes references to relevant codes and standards	B



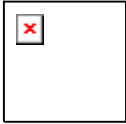
Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
<b>Accounting records Clause 10.</b>	The Licensee shall keep accounting records consistent with the requirements of the <i>Local Government Act 1995</i> , the Licensee shall prepare its accounts in a way which enables it to issue an operating statement which accurately describes its income and expenditure in relation to the Water Services provided under the Licence on an accruals basis:	Annual Reports 2003 and 2004 independently audited.	B
<b>Prices or charges Clause 11.</b>	In setting process or charges for services to Customers the Licensee shall comply with the relevant provisions and regulations of the <i>Health Act 1911</i> and the <i>Local Government Act 1995</i>	Prices and Charges are being set in accordance with the requirements of the Local Government Act..	B
<b>Methods or principles to be applied in the provision of Water Services Clause 12.</b>	<p>(a) Notwithstanding the engagement of any person or persons to provide Water Services on its behalf, the Licensee remains responsible to ensure those services comply with the terms and conditions of the Licence and with the relevant legislations</p> <p>(b) The Licensee shall ensure that its Water Services are available for Connection on request to any land situated in the Operating Area, subject to the applicant meeting any reasonable conditions the Licensee may determine to ensure safe, reliable and financially viable supply of services to land in the Operating Area in accordance with this Licence and any relevant legislation. Satisfactory compliance with the conditions of Connection are an essential requirement of gaining approval to connect to the Licensee's schemes.</p>	<p>Barnicott Plumbing and Water Corporation engaged under contractor/client agreements.</p> <p>Application forms and processes available at Reception Counter. Generally new connections are included in new sub-divisions and managed as projects. The processes are also documented in the Customer Services Charter.</p>	B
<b>Amendment, revocation or surrender Clause 13.</b>	The ERA may determine that the Licence is to be amended, etc	Did not occur during the audit period	N/A



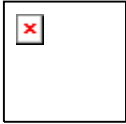
Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
<b>Specified information to be provided Clause 14.</b>	(a) Licensee shall inform the Authority of the occurrence of the following events within five days of their occurrence:  – Overflows from wastewater / sewerage infrastructure, including wastewater treatment plants, pumping stations etc.	The ERA is advised by letter and Incident Briefing Report.	B
	(b) The ERA may require a detailed report on these events to be provided within 14 days of the request.	Incident report prepared and provided to the ERA.	B
	(c) The Licensee shall report the information set out in Schedule 3. The reports are due within 30 days of the end of each financial year.	The information is provided to the ERA, but not within the 30 day period. Report provided by letter on 30 Set 04.	C
<b>Performance of functions by the Licensee Clause 15.</b>	(a) The Licensee shall comply with the quality and performance standards set out in Schedule 2	The incidence of sewer blockages for 2003/04 was 173 per 100 Km, which exceeds the target (40) Other KPIs are met.	D
	(b) The Licensee shall provide annual notification to all Customers provided with non-potable water that the water supplied is not suitable for drinking.	The City is the only non-potable water user. Parks and ovals have warning signs. Some signs are poorly placed.	C
	(c) The Licensee shall implement an emergency telephone system so a Customer can report an emergency and receive advice within one hour of the action to be taken by the Licensee. An emergency is an event, which causes, or threatens to cause, harm to people, the environment or property.	Emergency and after hours phone services established and published in phone book, Customer Charter and website. Response times within 1 hour requirements.	B
	(d) The Licensee shall maintain and operate its sewerage scheme so that sewerage does not overflow on Customers' properties.	One incident recorded during the period. Did not exceed KPI.	C



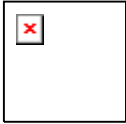
Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
	(e) The Licensee shall maintain and operate its sewerage scheme so that sewerage blockages are minimised.	The City continues to have significant problems with tree root blockages. A CCTV program, bi-annual root removal and pipe replacement programs are recommended.	C
Terms and conditions of Customer contracts Clause 16.	(a) The Licensee may enter into agreements with Customers to provide Water Services.	There are no contracts in place.	N/A
	(b) The Licensee may not enter into an agreement with a Customer that excludes, modifies or restricts the terms and conditions of the Licence without the prior written approval of the Economic Regulation Authority.	There are no contracts in place	N/A
Obligations to public authorities and other Licensees Clause 17.	Wastewater treatment plants operated by the Licensee shall have relevant Licences from the Department of Environmental Protection and be operated in compliance with those Licences.	DEP Licence (7177/7) renewed on 9 April 2004 till 8 April 2010.	B
Consumer consultation Clause 18.	(a) Prior to making major changes to the operation of a water service, such as the construction of a new wastewater treatment works or significant expansion of the sewerage network, the licensee will;		
	(i) Hold a public meeting to obtain the Customers views on the performance and operation of the scheme; or	Major changes have not occurred during the period.	N/A
	(ii) Advertise for written submissions on the proposal.	Not Required	N/A
	(b) The Licensee shall allow customers to raise matters of concern regarding the sewerage system at public question time in accordance with the <i>Local Government Act 1995</i> .	Public question time is available at Council Committee Meetings	B



Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
<b>Customer Service Charter Clause 19.</b>	(a) The Licensee must set out in writing the principles, terms and conditions upon which it intends to provide the Water Services to its Customers ('the Customer Service Charter')	Revised Customer Services Charter prepared, provided for Customer comment and issued October 2004.	B
	(b) The Customer Service Charter must be submitted to the Authority for his approval by 1 July 1999.	Submitted for approval and approved by ERA on 27 June 2005.	B
	(c) The Customer Service Charter:		
	(i) Should be drafted in 'plain English'; and	Yes	B
	(ii) Should address all of the service issues that are reasonably likely to be of concern to its Customers.	Yes	B
	(d) Different parts of the Customer Service Charter may be expressed to apply to different classes of Customers	Yes. Includes additional detail for industrial and commercial waste customers.	B
	(e) The Licensee shall review the Customer Service Charter not less than once in every period of 36 months.	Yes – reviewed and reissued in 2004.	B
(f) Any proposed amendment to the Customer Service Charter or replacement thereof must also be forwarded to the Authority for approval prior to implementation.	Submitted for approval and approved by ERA on 27 June 2005.	B	

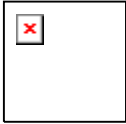


Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
	<p>(g) The Licensee must make the Customer Service Charter available to its Customers in the following ways:</p> <ul style="list-style-type: none"> <li>(i). by prominently displaying it in those parts of the Licensee's offices to which Customers regularly have access;</li> <li>(ii). by providing a copy, upon request, and at no charge, to a Customer; and</li> <li>(iii). by advising Customers of the availability of the Customer Service Charter on an annual basis.</li> </ul> <p>(h) It is a condition of the Licence that the Licensee provides services in a way that is materially consistent with its Customer Service Charter.</p>	<p>Copies available on request at the Reception counter. Customers advised of the availability through Rates Notices, but not displayed prominently.</p> <p>Yes – compliant</p>	<p>C</p> <p>B</p>
<p><b>Dispute resolution Clause 20.</b></p>	<p>(a) By 1 April 1999, the Licensee shall establish a system for recording, managing and resolving Customer Complaints within 21 days regarding a provided or requested Water Service.</p> <p>(b) To ensure the effectiveness of such a process the Licensee shall, as a minimum:</p> <ul style="list-style-type: none"> <li>(i). Record details of each Customer Complaint and its outcome;</li> <li>(ii). Provide an appropriate number of designated officers who are trained to deal with Customer Complaints who are authorised to, or has access to officers who are authorised to make the necessary decisions to settle Customer Complaints or disputes; including where applicable, approving the payment of monetary compensation; and</li> </ul>	<p>Complaint management procedures are documented in the Standard Operating Procedures.</p> <p>Recorded in the City-wide customer management system.</p> <p>Four staff available and trained in dispute resolution.</p>	<p>B</p> <p>B</p> <p>B</p>

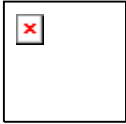


Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
	<p>(iii). Make such arrangements as are necessary to ensure that, If possible, Complaints can be resolved in the timeframes set out in subclause (a).</p> <p>(c) Where a dispute arises between a Customer and the Licensee regarding a provided or requested water service, the Customer may refer the dispute to the Water Services Planning Branch of the Department of Water.</p> <p>(d) Unless the Complaint or dispute is a matter in relation to which Section 3.22W of the <i>Local Government Act 1995</i> applies, where the the dispute has not been resolved within 21 days the Licensee shall inform the Customer of the option of referring their Complaint to the Water Services Planning Branch of the Department of Water.</p> <p>(e) The the Water Services Planning Branch of the Department of Water may:</p> <p>(i). Conciliate the dispute; or</p> <p>(ii). direct the Licensee and Customer to binding arbitration.</p> <p>(f) During the process of investigation and conciliation, the Licensee shall make every endeavour to promptly cooperate with the the Water Services Planning Branch of the Department of Water (or his or her representative's), requests, which shall include the expeditious release of any information or documents requested by the the Water Services Planning Branch of the Department of Water and the availability of the relevant staff of the Licensee.</p>	<p>Documented in the Standard Operating Procedures manual.</p> <p>No complaints during the period.</p> <p>Not required during the period</p> <p>Not required during the period.</p> <p>Not required during the period.</p>	<p>B</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>





Licence Clause or Schedule	The Licence Obligation	System established by the Licensee to comply with obligations of Licence dated Dec 2004	Compliance Scale
	(g) the Licensee shall, on request, provide the Water Services Planning Branch of the Department of Water with details of Complaints made, names and addresses of Customers who have made Complaints, and the manner in which the Complaint was managed and resolved.	Not required during the period.	N/A
<b>Customer Surveys (Clause 21)</b>	<p>(a) Where an issue arises that the Coordinator considers to be of concern to customers, the Coordinator may require the Licensee to commission an independent customer survey that shall address and conform to the conditions and parameters set out in writing by the Coordinator.</p> <p>(b) Such a survey will not be required more frequently than once every 12 months</p>	<p>Not required during the audit period</p> <p>Not required during the audit period</p>	<p>N/A</p> <p>N/A</p>



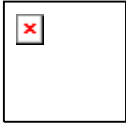
## 4. Asset Management System Review

The Asset Management System comprises the asset register, operations and maintenance manuals, Standard Operating Procedures (SOP) document, drawing register, capital investment plan, maintenance plans and works records. The Asset Management systems are very basic, but understood by the Waste Services staff and are stored in the City's computer systems on a variety of software platform. The City does not have an Asset Management Software System, nor an Asset Management Plan for the Water Services. While the current systems provide a basic maintenance management system, they do not include the capabilities or requirements of an Asset Management System as detailed in the International Infrastructure Management Manual.

Information, such as, the Levels of Service, asset performance, asset descriptions and condition have not been comprehensively documented and the level of equipment detail for most assets is limited.

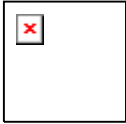
**Table 2 Asset Management Review Checklist**

<b>1. Asset Planning/Creation/Acquisition</b>		
<b>1.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
<i>1.1.1 Have the strategic objectives for the asset been identified?</i>	D	Although understood by staff, objectives are not documented.
<i>1.1.2 Have life cycle costs been considered?</i>	D	Not completed in the Asset Register
<i>1.1.3 Has the need for new assets been determined and full project evaluation process been followed, including comparative assessment of non-asset solutions?</i>	C	Generally considered in consultants reports and the City's Strategic Plan
<i>1.1.4 Have documents recording relevant details on the asset been collected?</i>	C	Partially completed in the asset registers. Makes, models etc of equipment is detailed in individual O&M Manuals
<b>1.2 Performance Related</b>		
<i>1.2.1 Do assets reflect the objectives identified in the asset creation/ acquisition phase?</i>	C	Generally, although specific performance requirements are not documented.
<i>1.2.1 Are actual costs as predicted?</i>	C	Generally included in the annual and five year budget at summary level.

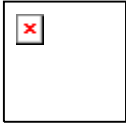


<b>2. Environmental Analysis</b>		
<b>2.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
2.1.1 <i>Have the performance requirements – availability of service, capacity, continuity, emergency response been documented?</i>	D	No evidence available
2.1.2 <i>Are the asset system objectives documented?</i>	C	WWTP is well documented. PS and pipe networks have not
2.1.3 <i>Have opportunities and threats in the system environment been assessed?</i>	D	No evidence available.
2.1.4 <i>Are regulatory obligations and statutory/regulatory requirements documented?</i>	B	Staff are aware of requirements, and obligations are documented in the SOP.
<b>2.2 Performance Related</b>		
2.2.1 <i>Is the asset meeting the level of service required by users of the service?</i>	C	Gravity mains have excessive blockages from tree roots and foreign bodies.
2.2.2 <i>Do the assets meet regulatory requirements?</i>	A	All compliant

<b>3. Asset System Analysis</b>		
<b>3.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
3.1.1 <i>Are the asset system components documented?</i>	C	Level of documentation limited for most assets. The pipes asset register appears to be adequate.
3.1.2 <i>Has asset performance and condition been assessed?</i>	C	No formal system in place. Anecdotal information is collected by staff. No condition documentation system evident
3.1.3 <i>Does the asset management plan include an asset register and plans of asset system components?</i>	C	AMP document does not exist. Asset register is a good spreadsheet for piping network. Drawings and plans are not available electronically for all assets.
3.1.4 <i>Does the register record asset type, location, material and an assessment of assets' physical/structural condition?</i>	C	Limited detail captured in the Asset Register. No condition information recorded.

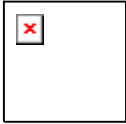


	<b>Compliance Scale</b>	<b>Comments</b>
3.1.5 <i>Are systems in place to assess asset and practice efficiency?</i>	D	Not completed formally. Reliant of staff experience and observations. Outcomes not recorded.
3.1.6 <i>Assets assessed for capability and deficiencies of current assets to meet performance requirements?</i>	C	Completed informally, but not documented in systems.
3.1.7 <i>Are practices covering operating rules and maintenance documented?</i>	B	Included in the SOP and O&M Manuals for WWTP.
3.1.8 <i>Do maintenance plans cover preventative and corrective maintenance?</i>	B	WWTP Plans prepared and cover preventative and corrective maintenance. Not done for Pump Stations or pipes.
<b>3.2 Performance Related</b>		
3.2.1 <i>Are actual assets and human resources appropriate for performance requirements?</i>	B	Assets are adequate and maintenance staff knowledgeable and very capable.
3.2.2 <i>Do operation and maintenance practices reflects performance targets?</i>	C	Operations and maintenance for WWTP is good. O&M practices for piping network need upgrading.
3.2.3 <i>Are costs measured and recorded?</i>	C	Not on an asset by asset basis. Aggregated to waste services group level..
3.2.4 <i>Is the asset under utilised?</i>	B	Assets appear to be suitable for capability requirements. Comprehensive system review completed by Consultant did not highlight any significant deficiencies.
3.2.5 <i>Is the level of maintenance justified against replacement costs?</i>	C	No evidence that analysis is done. Current practice is based on judgement of the operators and availability of resources.
3.2.6 <i>Has the asset been inspected?</i>	B	WWTP Assets are regularly inspected and reviewed.
3.2.7 <i>Is the asset's theoretical life known?</i>	D	Not completed.
3.2.8 <i>Does the asset management plan enable the prediction of asset deterioration and failure</i>	D	AMP not prepared and predictive analysis not done.

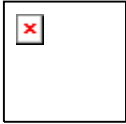


	<b>Compliance Scale</b>	<b>Comments</b>
3.2.9 <i>Do the maintenance plans and operational plans relate to what is required to achieve the levels of service required of the system?</i>	C	Good level of planning for WWTP. Other assets have none and activities are focussed on reactive response to problems (ie pipe blockages).

<b>4. Risk Analysis And Contingency Planning</b>		
<b>4.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
4.1.1 <i>Has a risk assessment of the asset been conducted?</i>	C	A very limited assessment has been conducted.
4.1.2 <i>Has the probability and consequences of asset failure been identified?</i>	D	No system in place to assess or record risks.
4.1.3 <i>Are appropriate contingency plans in place?</i>	C	Contingency Plan in place for WWTP. Other assets are reliant of the SOP information..
<b>4.2 Performance Related</b>		
4.2.1 <i>Is risk management practiced?</i>	C	Limited evidence on a risk management culture being implemented.
4.2.2 <i>Where unacceptable risks have been identified have risk control measures been implemented?</i>	C	Chlorine gas release was assessed in the previous period, but not reviewed during this period.
4.2.3 <i>Where events that may result in severe consequences have been identified have contingency plans been developed?</i>	C	The Contingency Plans for the WWTP have been developed. Other assets have not been assessed.

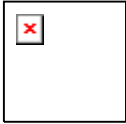


<b>5. Financial Planning</b>		
<b>5.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
<i>5.1.1 Does the financial plan provide projections of operating statements (profit and loss) and statement of financial position (balance sheets)</i>	B	Strategic Plan and Annual Reports include detailed financial plans for the Water Services Assets
<i>5.1.2 Does the financial plan cover the financial objectives and strategies and actions to achieve the objectives?</i>	B	Yes.
<i>5.1.3 Does the financial plan identify the source of funds for the capital expenditure plan?</i>	B	Yes
<i>5.1.4 Is the source of funds for operations, maintenance and administration identified in the financial plan?</i>	B	Yes
<i>5.1.5 Does the financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period?</i>	B	Strategic Plan includes detailed revenue projections for five years
<b>5.2 Performance Related</b>		
<i>5.2.1 Does the financial plan provide for the operations and maintenance, administration and capital expenditure requirements of the scheme?</i>	D	Strategic Plan includes detailed expenditure projections for five years



<b>6. Capital Expenditure Planning</b>		
<b>6.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
6.1.1 <i>Has a capital expenditure plan been prepared?</i>	C	Prepared at summary level only in the Strategic Plan.
6.1.2 <i>Does the plan cover the issues to be addressed, the actions proposed, the centre of responsibilities, and deadline dates?</i>	C	At summary level only.
6.1.3 <i>Does the plan provide reasons for capital expenditure and timing of expenditure?</i>	B	Expenditures linked to Business requirements and outcomes for the City in the Strategic Plan.
<b>6.2 Performance Related</b>		
6.2.1 <i>Is the capital expenditure plan consistent with the asset life and condition identified in the asset management plan?</i>	C	Not able to be assessed without additional level of detail. Strategic plan focuses on growth. Little consideration on replacement/refurbishment strategies.

<b>7. Review</b>		
<b>7.1 Output Related</b>	<b>Compliance Scale</b>	<b>Comments</b>
7.1.1 <i>Is a review process in place to ensure that asset management plans are kept current?</i>	D	No review process.
<b>7.2 Performance Related</b>		
7.2.1 <i>Are asset management plans being reviewed at appropriate intervals?</i>	D	No.
7.2.2 <i>Are the asset management plans current?</i>	D	No. Plan has not been prepared.



## 5. Conclusions and Recommendations

The outcome of the inspection of the water services assets and interviews with the City of Kalgoorlie-Boulder staff was that the systems are operated effectively, within the current standards and code requirements and present minimal risks to the City's customers and residents. However, the level of documentation and management systems is very basic and inadequate for the number and complexity of the water services assets.

The City is experiencing a period of growth and planned refurbishment/replacement of poorly performing assets has been considered, but not implemented. While there has been some improvement from the previous audit, reallocation of staff responsibilities and roles has resulted in a number of management tasks and activities being delayed. Also the reporting requirements to ERA had lapsed in the earlier part of the audit period, but have been improved over the later part of 2004 and 2005.

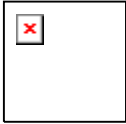
The primary deficiencies with the operation of the Water Services Licence are in the area of management systems, reporting and asset management planning. The recommended improvements are:

### 5.1 Operational Audit

The following recommendations are provided to improve the compliance City's Operating Licence:

Licence Clause	Licence Obligation	Recommendation
Asset Management System Clause 6 (a) (i)	Provide for an Asset Management System.	Purchase and implement an Asset Management software system and migrate the hard and soft copy information to one system.  Prepare an Asset Management Plan for Water Services assets.
Performance of functions by the Licensee Clause 15 (f).	The Licensee shall comply with the quality and performance standards set out in Schedule 2	The city needs to implement a pipe inspection, clearing and refurbishment / replacement program as priority to address the high rate of sewer blockages.





## **5.2 Asset Management Review**

The following improvements are recommended for the Asset Management System:

### **Asset Planning/Creation/Acquisition**

- ▶ Establish the strategic objectives of assets,
- ▶ Document life cycle costs for all assets,
- ▶ Implement a system of full project evaluation for new assets, and
- ▶ Document asset details.

### **Environmental Analysis**

- ▶ Document the performance requirements for all assets (availability of service, capacity, continuity, and emergency response),
- ▶ Document the asset system objectives, and
- ▶ Prepare opportunities and threats assessment for each system.

### **Asset System Analysis**

- ▶ Document the asset system components,
- ▶ Assess the asset performance and condition,
- ▶ Update asset register and plans to system components level,
- ▶ Record the asset type, location, material and an assessment of assets' physical/structural condition,
- ▶ Instigate a system to assess asset efficiency, including performance capacity and deficiencies,
- ▶ Document the outcomes in an Asset Management Plan, and
- ▶ Update asset life, predictive failure modes and maintenance requirements.

### **Risk Analysis and Contingency Planning**

- ▶ Assess the probability and consequences of asset failures,
- ▶ Prepare appropriate contingency plans for high risk failures, and
- ▶ Identify unacceptable risks and prepare risk control measures.

### **Financial Planning**

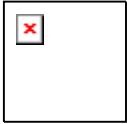
- ▶ Prepare detailed five year capital replacement program for water services assets.

### **Capital Expenditure Planning**

- ▶ Establish a detailed capital expenditure plan based on asset condition and performance and document within the AMP.

### **Review**

- ▶ Instigate a process for the periodic review of the asset management systems.



### **5.3 Conclusion**

The City's water services systems are generally in reasonable condition and operated effectively by the City's staff, Barnicott Plumbing and the water Corporation.

The major areas for improvement are in asset management systems, capital and maintenance expenditure planning processes. The absence of an Asset Management software system and an Asset Management Plan exposes the City to ad hoc management practices and short term planning.

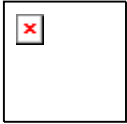
### **5.4 Compliance Statement**

Mark Bourhill, GHD's Manager Management Services Group has prepared this report for the City.

It is certified that the "Scope and Guidelines for the Water Service Licence: Operational Audit, and Asset Management Review for the City of Kalgoorlie-Boulder (the Licensee) – 1 January 2005" have been followed in conducting the review, making the review findings and preparing the report.

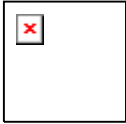
The assessment, findings and recommendations contained in this report reflect the professional opinion of Reviewer.

Mark Bourhill  
Manager Management Services  
GHD Pty Ltd  
31 January 2006



## Appendix A

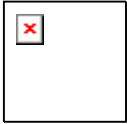
# Risk Assessment



## Operational Audit Risk Calculation: Water Supply Licence

Operating Licence Compliance Element	Operating Licence Reference	Failure during period audited				Likelihood (2)	Inherent Risk (3)	Adequacy of Existing Controls (4)	Priority (5)
		Consequence (1)							
		C 1	C 2	C 3	O				
<b>OPERATING AREAS</b>									
Water Services in designated operating area	<i>Clause 2(b), Sched 1</i>	1	1	2	1	D	Low		
<b>CUSTOMER COMPLAINTS</b>									
Recorded	<i>Clause 20(b)</i>	2	2	1	2	C	Low		
Investigation, conciliation & arbitration	<i>Clause 20(f)</i>	3	2	2	2	D	Low		
Responsiveness (eg solution within 21 days)	<i>Clause 20 (a), Sched 3</i>	3	2	2	2	C	Low		
<b>CUSTOMERS</b>									
Charter in place, reviewed and followed	<i>Clause 19</i>	1	2	2	2	C	Low		
Ongoing consultation and feedback established	<i>Clause 18</i>	1	2	2	2	C	Low		
<b>WATER SERVICES PROVISION</b>									
Conditions for connection followed	<i>Clause 12 (b)</i>	3	3	2	3	D	Medium		
Availability	<i>Clause 12 (b)</i>	2	1	1	2	D	Low		
Discontinuance	<i>n.a.</i>	3	2	2	2	D	Low		
Billing	<i>n.a.</i>	2	2	2	2	C	Low		
<b>INFO PROVIDED TO AUTHORITY</b>									
Annual Benchmarking report	<i>Sched 3</i>	1	1	3	2	C	Low		
Incidents (reported within 5 days)	<i>Clause 14</i>	1	2	3	3	C	Medium		
<b>CONTRACTING OF SERVICES</b>									
Maintenance of Licence Standards	<i>Clause 6 (b)</i>	3	3	3	3	D	Medium		
<b>STANDARDS</b>									
Adherence to Regulation	<i>Clause 5</i>	2	2	3	2	D	Low		
Adherence to technical standards	<i>Clause 8</i>	2	2	3	2	D	Low		
Adherence to industry codes	<i>Clause 9</i>	2	2	2	2	C	Medium		
Accounting records – prepared to standard	<i>Clause 10</i>	1	1	1	1	D	Low		
Pricing and charges – adhere to legislation	<i>Clause 11</i>	1	1	1	1	D	Low		
Services provided by agreement documented	<i>Clause 16</i>	3	3	3	3	D	Medium		
Obligations to other licensees adhered to	<i>Clause 17</i>	2	2	2	2	C	Low		
Customers advised re planned disruptions	<i>As per charter</i>	3	2	2	3	C	Medium		
Customers contacted re emergency shutdowns	<i>As per charter</i>	3	3	3	3	C	Medium		
Emergency telephone service operational	<i>Clause 15 (c)</i>	3	2	2	3	C	Medium		
<b>STANDARDS SPECIFIC TO:</b>									
<b>DRINKING WATER</b>									
Quality	<i>n.a.</i>								
Pressure and flow	<i>n.a.</i>								
Interruptions	<i>n.a.</i>								
Drought response	<i>n.a.</i>								
Leaks and bursts	<i>n.a.</i>								
<b>NON-POTABLE WATER</b>									
Annual notification water not safe for drinking	<i>Clause 15 (b)</i>	3	3	3	3	C	Medium		
<b>SEWERAGE</b>									
Overflows	<i>Clause 15 (d), Sched 3</i>	1	2	3	2	C	Low		
Blockages	<i>Clause 15 (e), Sched 3</i>	2	2	3	3	C	Medium		
<b>DRAINAGE</b>									
Effectiveness of Design	<i>n.a.</i>	1	2	3	2	D	Low		
Effectiveness of Maintenance	<i>n.a.</i>	1	2	3	2	D	Low		
Monitoring of outflows quality	<i>n.a.</i>	3	3	3	3	D	Medium		

See over for definitions and notes



**Definitions and notes:**

The Consequences of an event happening (and as a result the risk) are to be assessed against: Customers, Community and State. These relate to the C1, C2, and C3 columns respectively. An 'Overall' assessment (Column 'O') is based on a subjective assessment of the three consequences.

Consequences are to be assessed as either:

- A. Negligible
- B. Marginal
- C. Critical
- D. Catastrophic

Likelihood is an indication of how often the failure will occur during the period to be audited. The likelihood is to be assessed as either

- A Almost Certain.
- B Likely.
- C Moderate.
- D Unlikely.
- E Rare.

Inherent Risk is to be assessed as either

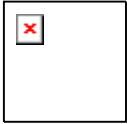
- ▶ High;
- ▶ Medium;
- ▶ Low; or
- ▶ Nil.

The adequacy of existing controls are to be assessed as:

- ▶ Strong
- ▶ Weak; or
- ▶ N.A.

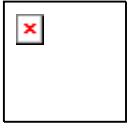
The following criteria the City should be used to assess internal controls:

- ▶ Customer focus
- ▶ Regulatory compliance
- ▶ Adequate documents and records
- ▶ Segregation of duties
- ▶ Access controls
- ▶ and possibly (depending on Licensees size)
- ▶ Validity of data



- ▶ Performance reviews
- ▶ Monitoring

Priority to be ranked from 1 to 5, where 1 is the highest.



**GHD Pty Ltd** ABN 39 008 488 373

GHD House, 239 Adelaide Tce. Perth, WA 6004

P.O. Box Y3106, Perth WA 6832

T: 61 8 6222 8222 F: 61 8 6222 8555 E: [permail@ghd.com.au](mailto:permail@ghd.com.au)

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**Document Status**

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	M Bourhill	J Stewart		M Bourhill		