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PILBARA IRON 2007 OPERATIONAL AUDIT AND ASSET MANAGEMENT REVIEW SYSTEM

Prepared for: Pilbara Iron Pty Ltd

Ref: 771/C/009a

June 2007

PILBARA IRON

2007 OPERATIONAL AUDIT

AND

ASSET MANAGEMENT SYSTEM REVIEW

Document Status

Revision	Date	Revision Description
A	15 June 2007	Draft Issued for Client Review
B	20 June 2007	Draft Issued for ERA Review
C	31 July 2007	Re-issued w/o "Draft" watermark

	Name	Position	Signature	Date
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EXECUTIVE SUMMARY

GENERAL

This report has been prepared in accordance with the Audit Guidelines: Electricity, Gas and Water issued by the Economic Regulation Authority (2006).

Pilbara Iron holds a licence under the Water Services Licensing Act (1995) to provide potable and wastewater services to the three towns of Dampier, Tom Price and Paraburdoo. The licence conditions require that quality performance standards be met for provided services, and that effective systems are in place for planning, construction and maintenance of assets.

The current audit has been conducted in order to evaluate PIs compliance with the licence conditions during the period: July 2005-Jun 2007.

AUDIT RECOMMENDATIONS SUMMARY

Pilbara Iron continues to respond positively to recommendations made in the Audit Review process. The Audit assigned a risk and priority associated for each issue identified in the Operating Licence. Areas were then evaluated for compliance. Pilbara Iron operations were considered non-compliant in two areas of operation; drinking water continuity (i.e. interruptions) and leaks and bursts. It was concluded that these criteria were not being met, because of system upgrade works, and are part of ongoing proactive initiatives to improve system wide performance, including the installation of additional valves to reduce future interruptions and a leaks repair program.

All other areas were compliant and were graded - a low priority and lower compliance indicated an area of focus. The following table summarizes this information for the most pertinent issues.

Summary Level of Compliance

Priority Areas	Clause/Schedule	Specific Issue	Compliance Scale
1	Schedule 8 / Sect.3.2	Amoebae Presence in drinking water	4
2	Schedule 8 / Sect. 2.1, Sect. 3.1	Drinking water standards – health related	4
3	Schedule 8 / Sect. 4.1,4.2	Services provided by special agreement	N/A
3	Schedule 8 / Sect. 5	Sewerage overflows performance criteria	4
3	Schedule 8 / Sect. 5 & Schedule 9	Sewerage blockages performance criteria	3
3	Schedule 6 / Sect. 2.1	Customer Complaint reporting	5
3	Schedule 8 / Sect.2.2	Quarterly health reporting	5
3	Schedule 6 / Sect. 3.1	Incident reporting	3
4	Schedule 8/Sect. 2.4	Drinking water continuity performance criteria	2
4	Schedule 9	Drinking water leaks/bursts performance criteria	2
4	Schedule 2/Sect. 1.1	Customer complaints record	3
4	Schedule 2/Sect. 1.2	Incident resolution timeframe	3

A summary of the effectiveness of the Asset Management System is given in the table below. The rating for each management area reflects the overall average performance for all related sub-components. In general, PI's Asset Management initiatives are well-defined with measurable performance goals established and monitored.

Summary of Asset Effectiveness

Management Area	Specific Issue	Effectiveness
Asset Planning	Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner. OUTCOME: Integration of asset strategies into operational or business plans to establish a framework for existing and new assets to be effectively utilised and their service potential optimised.	3-4
Asset Creation/Acquisition	Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay. OUTCOME: A more economic, efficient and cost-effective asset acquisition framework to reduce demand for new assets, lower service costs and improve service delivery.	4
Asset Disposal	Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets. OUTCOME: Alternatives are evaluated in cost-benefit terms. Effective management of the disposal process to minimise holdings of surplus and under-performing assets and lower service costs.	4
Environmental Analysis	Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system. OUTCOME: The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements.	4
Asset Operations	Operations functions relate to the day-to-day running of assets and directly affect service levels and costs. OUTCOME: Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels are consistently achieved.	3-4
Asset Maintenance	Maintenance functions relate to the upkeep of assets and directly affect service levels and costs. OUTCOME: Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work is done on time and on cost. Maintenance policies and procedures are documented and linked to service levels required	4
Asset Management Information System (MIS)	An asset management information system is a combination of processes, data and software that support the asset management functions. OUTCOME: The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system.	3-4
Risk Management	Risk management involves the identification of risks and their management within an acceptable level of risk. OUTCOME: An effective risk management framework is applied to manage risks related to the maintenance of service standards.	4
Contingency Planning	Contingency plans document the steps to deal with the unexpected failure of an asset. OUTCOME: Contingency plans have been developed and tested to minimise any significant disruptions to service standards.	4
Financial Planning	The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term. OUTCOME: A financial plan that is reliable and provides for the long-term financial viability of the services.	4
Capital Expenditure Planning	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. 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.	4
Review AMS	General Overview of the entire Asset Management System	4

Recommendations were made where this report identified instances in which PI's full compliance with Licence requirements may be further enhanced. These are summarised in the following table:

Summary of Recommendations

Management Area	Specific Issue	Recommendation
Operations	Contractors Information Pack	It is recommended that the contract information pack be updated to include customer consultation guidelines.
Operations	Reporting Years	It is recommended that Pilbara Iron consider (with ERA) an alignment of the audit timetable and the reporting timetable.
Operations	Customer Complaints	It is recommended that PI continue to develop the Customer Call Centre and the associated training / scripting to ensure the accuracy of the information recorded.
Operations	Levels of Service Standards, Performance Indicators & Reporting Requirements	It is recommended that Pilbara Iron continues to be proactive in assessing and dealing with issues that prevent compliance with the operating licence.
Operations	Water quality sampling	It is recommended that further effort is taken to communicate and ensure sampling staff are fully knowledgeable of the new procedures clearly outlined in the manual.
Operations	Water quality sampling (Contractors)	It is recommended that key points from the Water quality training are included in the Contractor Information Pack where applicable, so that contractors can refresh their knowledge easily.
Asset Management	Maintenance Work Management	It is recommended that Equipment Maintenance Strategies and Maintenance Work Management objectives / service levels required are documented in the Asset Management Improvement Plan / Reliability Plans are completed, reviewed as required by the Plan, and linked aligned with day to day operations (Planners and SAP).
Asset Management	Asset Management Information System	It is recommended that the asset management information system as documented in the Asset Management Improvement Plan / Reliability Plans be completed, and be available to planners / field staff for day-to-day running of the asset management system.

AUDIT COMPLIANCE CONCLUSIONS

It is the Auditors' view that Pilbara Iron is achieving an adequate level of compliance with the requirements of the Operating Licence. Since the last audit in 2005, Pilbara Iron has responded positively to the recommendations made. Initiatives have been developed or implemented to address each of the previous recommendations in this audit period. Measures can be taken to improve the level of compliance for some of the issues tabled in Appendix C. These are outlined in the recommendations of this audit.

This audit review concludes that Pilbara Iron's asset management systems are of a high standard, with acquisition, maintenance and construction initiatives being consistent with the scale of operations and the projected life of the towns.

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SECTION 1 - INTRODUCTION

1.1 GENERAL

In May 2007, Aquaterra was commissioned by Pilbara Iron (PI), with the approval of the Economic Regulation Authority (ERA), to undertake the 2007 Operational Audit and Asset Management System Review. The audit/review assessed:

- The adequacy and effectiveness of measures taken by PI to maintain those quality and performance standards referred to in the Licence, and
- The effectiveness of processes implemented by PI to maintain assets used in the provision of water services and for the undertaking, maintenance and operation of water service works.

Following acceptance of the Audit and Review Plan by PI and ERA, Lead Auditor Rhod Wright undertook the on-site component of the audit and review between 15 – 17 May 2007.

This report summarises the findings of the Operational Audit and Asset Management Review and identifies areas of the asset management system that could be improved or enhanced.

1.2 OBJECTIVES AND SCOPE - OPERATIONAL AUDIT

Organisations providing water supply; sewerage; irrigation; or drainage services in a controlled area must hold a licence. Under the Water Services and Licensing Act 1995, ERA specifies controlled areas within which water service providers must hold a licence. Pilbara Iron is responsible for water and sewer in five towns (Pannawonica and Wickham as well as Dampier, Paraburdoo and Tom Price). Only the potable and sewerage water services for the towns of Dampier, Paraburdoo and Tom Price and their surrounding areas are governed by the Operating Licence under review in this audit.

The licence conditions require that quality performance standards be met for water and wastewater services, and that effective systems are in place for planning, construction and maintenance of assets. The three towns Dampier, Tom Price and Paraburdoo are included under the one licence for potable water supplies and sewerage services.

In accordance with Section 37 of the Act, and under the conditions of the Operating Licence, PI is required to carry out the proposed audits not less than once every 24 months. The audit and review have been based on the ERA's Audit Guidelines: Electricity, Gas And Water Licences 2006.

The primary objective is to evaluate the effectiveness of measures taken by PI to maintain the quality and performance standards which are referred to in PI's operating licence, over the period from April 2005 to March 2007.

The audit review process is centred on a targeted risk mitigation approach, in which risks are identified in the operational process and assessed against the terms of the licence and standards set by the ERA, in order to focus attention on higher risk areas.

1.3 OBJECTIVES AND SCOPE - ASSET MANAGEMENT SYSTEM REVIEW

The Water Services Licensing Act 1995 also requires that PI provide for and maintain an asset management system. The system must set out the measures to be taken by PI for the proper maintenance of its assets and for the undertaking, maintenance and monitoring of its water services works.

This review provides an opinion to the Authority on whether PI has in place the appropriate systems for the planning, construction, operation and maintenance of its assets. In reaching this opinion, the review examined:

- The adequacy of the asset management system by considering the outputs of the system, such as the operations and maintenance plans, asset registers and financial plans;
- The effectiveness of the asset management system by considering the systems established for the planning, construction, operation and maintenance of works;
- Whether the system provides for the identification, development and implementation of strategic initiatives to improve the effectiveness of asset management;
- The Licencee's response to the recommendations made in previous reviews conducted in 2003 and 2005.

The review also focused on identifying those aspects of the asset management system which may be further strengthened, with the view to providing feedback to PI on the adequacy and effectiveness of the system.

1.4 PERIOD COVERED BY THE AUDIT/REVIEW

The audit and review covered the period from 1 April 2005 to 31 March 2007.

1.5 DETAILS OF THE LICENCEE'S REPRESENTATIVES PARTICIPATING IN THE AUDIT.

The following representatives of PI participated in the audit and review:

1.5.1 Dampier

- Andrea Sutton General Manager Infrastructure
- Heath Bennett Engineer Water Service
- Damian Stevens Manager Engineering and Compliance
- Bennie Smith Manager Utilities
- Paul White Utilities Superintendent
- Shane Balch Customer Services Superintendent
- Renee Buxton Customer Services Officer Water
- John Taylor Planner
- Andrew Nuttman Superintendent Asset Development

1.5.2 Paraburdoo

- Warren Black Planner
- Emma Webber Secretary

- Paul White Utilities Superintendent
- Heath Bennett Engineer Water Service
- Laurie Morley Byblos Paraburdoo staff (water / wastewater services contractor)

1.5.3 Tom Price

- Len Richardson Technical Officer
- Heath Bennett Engineer Water Service

1.5.4 Perth (Rio Tinto Head Office)

- Ed Wilmott Senior Commercial Analyst

1.6 AUDIT AND REVIEW TEAM

The Team comprised:

- Lead Auditor Rhod Wright
- Reviewer Hugh Middlemis

The following table provides a break up of hours spent on the review:

Table 1
Audit Review Time Allocation

Task no.	Audit and Review Task	Hours
	Risk Assessment	10
1	Development and approval of Audit and Review Plan	35
2	Site Visit	35
3	Reporting and Follow-up	65
	Total Hours	145

1.7 DETAILS OF KEY DOCUMENTS AND OTHER INFORMATION SOURCES EXAMINED

Many documents were examined during the audit. Those documents relevant to the audit are listed below:

- Audit Guidelines: Electricity, Gas And Water Licences, ERA
- Operating Licence (Water Services Licensing Act 1995)
- 2005 Operational Audit and Asset Management System Review, Final Report (SMEC)
- Investigation into the adequacy of Dampier Sewers (PI internal)
- Leakage Detection Survey (completed between October and November 2006)
- Asset Management Improvement Plan: Water and Wastewater Services 2007 – 2008
- SAP (PI's main business software application)
- Water Quality Management Plan, Greater Paraburdoo, PI, January 2007
- Water Services Asset Management S: Water Quality Management Manual, PI, December 2006

- Water and Sewerage Services Questionnaire, PI, current
- Water and Wastewater Asset Management System: Operating Licence Date Summary (to April 2007)
- Monitoring Your Water Usage: PI Customer Services Dep't, current
- Organisation Chart for Infrastructure Division, PI, current
- Water and Electricity Account Application Form, PI, current
- Contractor Information Pack: Water Services Operating Licence, PI, May 2006
- Water Services Operating Licence - annual report for the period 1/7/05 to 30/6/2006
- "More Than A Drop In The Ocean", Features Magazine, PI, April 2007
- "Water Consumption Tier Of Rates", PI, 2001/2002 and still current
- "Water Use Where Are You?", RioTinto (water conservation poster)
- "Saving Water In Our Towns: Pannawonica, Tom Price, Paraburdoo, Dampier, Wickham, Karratha" (article for local newspaper, Pilbara News)
- PI Website www.pilbarairon.com/infrastructure (the new "One Stop Shop"
- Utilities Networks 2007 Budget Guide
- Customer Charter Water Service
- "The Answers to All Your Housing Questions at One Address" (flier advertising the new "one Stop shop at the website)
- PI Waterwise Calendar 2007
- PI Asset Management Manual, PI, September 2005
- Pilbara Iron Annual reports and financial statements
- Asset Register
- Pilbara Iron website http://www.pilbarairon.com/

SECTION 2 - METHODOLOGY

2.1 APPROACH

The audit methodology used by the team is based on the protocol outlined in the ERA's Audit Guidelines: Electricity, Gas and Water Licences 2006, with a review of the recommendations and actions planned from the 2005 audit. The work involved was divided into distinct parts. The purpose and related activities of each task are detailed below. The six phases are:

- Establish the Context
- Risk Assessment
- Asset Management Assessment
- Develop Audit and Review Plan
- Site visit
- Reporting and follow-up

2.2 ESTABLISH THE CONTEXT

This phase identified the regulatory environment (Water Services and Licensing Act 1995, and Operating Licence), including specific compliance criteria of the licence. The documents reviewed have been referenced in the Audit Report, and some excerpts included in appendices to the report.

2.3 RISK ASSESSMENT

A risk assessment was carried out on the Operating Licence and approved prior to the site visits to the three towns, and is included herein for perusal. As per the Audit Guidelines, the risk was assessed based on the scale of associated consequences and likelihood of occurrence. Consideration was also given to the proven adequacy of controls that PI has in place to deal with a particular risk. The "priorities" for the audit of the Operating Licence were identified as water quality, health related compliance and amoebae compliance. The checklist was also used generally as a guide during the audit and ranked lower priorities.

2.4 ASSET MANAGEMENT ASSESSMENT

An asset management adequacy matrix / checklist was produced based on 12 specific topics provided in the Audit Guidelines, and management strategies were assessed for competency based on a six point rating scale (refer Table 7 Appendix A). Considerations include the pro-active nature of the strategy (setting goals/targets), the level of monitoring and review the management strategy undergoes, as well as the cohesiveness of the strategy in the overall scheme.

2.5 DEVELOP AUDIT AND REVIEW PLAN

An audit and review plan, based on the foregoing, was submitted to Pilbara Iron and ERA, and approved 11 May 2007.

2.6 SITE VISIT

The site visit included a tour of the 3 no. operational control areas governed by the licence (i.e. Dampier, Paraburdoo and Tom Price) between Tuesday 15 May and Thursday 17 May 2007. It included discussions and questioning of key operational and administrative staff, and observation of processes, procedures and

operations. A short closing meeting was held with PI staff over the phone on 18 May 2007, to provide an initial assessment of the audit asset system review and allow an opportunity for questions.

SECTION 3 - OBSERVATIONS

3.1 LICENCE TO OPERATE (CLAUSE 2)

3.1.1 Pilbara Iron / Hamersley Iron

The operating licence is in the name of Hamersley Iron and is valid until 1 June 2026. Hamersley Iron has assets comprising 8mines, 630kms of railway, port and infrastructure located in Dampier. Pilbara Iron manages, operates and maintains the assets (including housing and water / sewer assets), on behalf of Hamersley Iron and Robe River Iron Associates, as a single operation (Hamersley retains responsibility for its own independent sales and marketing function). Pilbara Iron in turn is a wholly owned-subsidiary of Rio Tinto. Most branding of assets / literature is "Pilbara Iron" with some Hamersley Iron and Rio Tinto branding observed.

3.1.2 Changes to Management in the Last Audit Period

Pilbara Iron has introduced and is rolling out a new company wide business management system, which is based on Toyota's "LEAN" system. It is described as pursuing and eliminating waste and the extra cost of waste from the business. It also advocates continuous improvement and transparent intra-company communication of key 'performance' indicators (KPI's), using the so-called LEAN board to display KPI information, as an instant visual indicator of compliance / performance in that particular activity. This is anticipated to have benefit and provide pro-activity in all facets of the business, including the team water and sewer KPI's.

In 2006, Pilbara Iron created a separate Infrastructure Division with approximately 200 staff, responsible for housing, water, sewer, and other disciplines in mining operations and towns (Pannawonica and Cape Lambert as well as Dampier, Paraburdoo and Tom Price).

3.1.3 Life of Towns

The 3 towns under review have existed for about 35 years, and (it has recently been decided) will remain in operation for a projected additional 30 years. Although Pilbara Iron is expanding mining operations, it is not anticipated that the towns themselves will expand to any great extent (extra accommodation will be provided in camps, located elsewhere). Therefore, the water and sewer systems are currently considered adequate for the future. In light this, ongoing capital works will largely, be replacement assets (e.g. a new Dampier WWTP).

3.1.4 Reporting Years

The licence reporting timetable is the "financial year" (FY) i.e. mid year to mid year. (The Rio Tinto financial year is January-December). The audit period is from April 2005 to March 2007 inclusive. Pilbara Iron may request alignment of the audit timetable and the reporting timetable. In this scenario, the audit would take place after the end of the annual reporting period (when the annual collation of performance parameters was available, rather than auditing performance parameters that date from the previous year). To effect this change, the next bi-annual audit would take place in August 2009 (rather than May 2009) or three months later. This audit supports this course of action, as it would allow access to performance information when it is most recent.

3.2 TERMS AND CONDITIONS (CLAUSE 3)

The audit found that Pilbara Iron generally endeavours to comply with the terms and conditions encompassed in Clause 3 (i.e. customer complaints, customer charter, customer consultation, principles of service, information, and prices or charges). New initiatives and efforts, in particular the New Customer Call Centre, have been made to improve customer service performance since the 2005 Audit.

3.3 STANDARDS AND REQUIREMENTS (CLAUSE 4)

Pilbara Iron first provided a report on the effectiveness of the asset management system, and the first operational audit, by 1 June 2003, as required. Pilbara Iron must comply with any minimum technical (water industry related) standards published in the Government Gazette, and reviews the Government Gazette online monthly (www.slp.wa.gov.au). No new standards have been issued in this audit period. Again the audit indicates that Pilbara Iron endeavours to observe the standards, principles, performance indicators and reporting requirements as set out in the Operating Licence.

3.4 AMENDMENT OR REVOCATION OF LICENCE (CLAUSE 5)

The current licence is Version 3, dated July 2004.

3.5 CONTRACTING

Services provided by contractors must comply with the terms and conditions of the licence. Pilbara Iron uses two contractors, Jones and Paul in Dampier, and Byblos in Paraburdoo and Tom Price, for work covered under the licence (a third contractor is used for internal plumbing within Pilbara Iron houses). The contractors therefore must meet the same operating licence standards and conditions. A contractors information pack was completed in June 2004, and a presentation arranged for contractors, and copies of the pack provided. An updated package was distributed in May 2005 and May 2006 (Rev 2).

For planned maintenance, Pilbara Iron takes responsibility for planning the work and advising customers. However, when reactive/emergency work is required (where Pilbara Iron cannot provide prior advice to residents), the contractor becomes responsible for all consultation (e.g. door knocks, letter drop). The information pack does not include any information on this requirement, nor on such consultation. It also includes no information for recording the actual residences that are interrupted, and the length of time. It is recommended that this information be included in the contract information pack.

From discussions with the contractors on site, it was noted that there is an understanding of the need for planning (allowing for shift workers for example), consultation, monitoring and recording of interruptions during emergency outages.

3.6 SCHEDULE 1 – AREAS OF OPERATION

Pilbara Iron continues to operate within the areas designated in the licence.

3.7 SCHEDULE 2 – CUSTOMER COMPLAINTS & INVESTIGATION, CONCILIATION & ARBITRATION

3.7.1 Customer Complaints

PI has a new Customer Call Centre (ph 1800 992 777), in operation since Christmas 2005, available to discuss all matters of housing and services, as well as external queries. The Call Centre consists of about six operators in an office in Dampier during the day, and then switches to an external provider at night,

allowing 24 hour operation. There is no front customer service area or desk. Staff have been trained in customer relations, by the customer services manager.

The software (the "HP" system) includes a scripting system that leads operators through various questions and steps. The system records calls and e-mails, issues each with a unique identifying number and provides a trackable history. Relevant information is sent through to field staff, and this is followed up with reminders. The system is able to report on outstanding issues. There are changing priorities as the request progresses through the system. The Call Centre is thus able to receive, record, and manage customer complaints, and endeavours to do this within a time frame of 21 days for water and sewer matters.

Some teething problems were observed. For example; some of the scripting needs to be reviewed; some field requests are misdirected; a lack of follow-up from the field staff limits the effectiveness of operators in respect to actual progress in the field and advise back to customers; and the system is still being bypassed at times (whereby employees gain direct access to maintenance personnel). It is understood that this last problem will be rectified to some extent, by issuing new (non-public) mobile phone numbers to maintenance staff). The other problems mentioned above are generally not the product of the new system itself, and are expected to wane as staff gains familiarity with the new protocols. It is recommended that these items be specifically addressed in training and inductions given to staff.

3.7.2 Investigation, Conciliation and Arbitration

It is understood that a complaint resolution situation has not arisen to date. However, Pilbara Iron has established a basic complaint resolution protocol, which is provided in the Customer Charter. The protocol includes first the customer service centre, and if a customer remains unsatisfied, then Pilbara Iron is required to inform the customer of their options regarding arbitration through the ERA. For complex issues, Pilbara Iron advises they would maintain a free and accessible dispute resolution process.

3.8 SCHEDULE 3 – CUSTOMER CHARTER

The current Customer Charter was reviewed within this audit period, in June 2005, and was approved in November 2005. The next review is required by November 2008. The Customer Charter is a plain English document which addresses all services provided. Water/sewer services provided have been detailed in the Customer Charter, and the website, and apply uniformly to all residents in the towns.

Customer feedback about expectations of service levels has been gained via an (approved by ERA) customer surveys sent out in 2005 and 2006. However there has been a poor response. The survey questioned which organisation supplies the water, is the customer aware of the water supply minimum standards, any issues or concerns over the water supply, comments on the customers expectations. Similar questions are asked with respect to sewer services. In addition, knowledge of the existence of the customer charter and customer complaints procedure is requested.

Past performance delivery data is captured in the KPI data assembled for the ERA reporting.

There is no front office per se, in which to display the Customer Charter, but copies can be provided on request, and are provided as a matter of course to all new residents and annually, with the November rates notice. Service standards are communicated upon request, after a complaint of (e.g. poor pressure) and by way of information included in the Customer Charter and newsletters. Evidence that service standards are deliverable at least 90% of the time is done by way of regular reporting to ERA.

3.9 SCHEDULE 4 – CUSTOMER CONSULTATION

Pilbara Iron provides for a range of ongoing customer consultation processes. In regard to water conservation issues, Pilbara Iron have generally aligned themselves with the Water Corporation's position (watering hours / waterwise messages, in order to avoid any confusion (e.g. as may occur between the twin towns of Dampier (Pilbara Iron) and Karratha (Water Corporation). Consultation initiatives include:

- Water committee and forums, town water meeting, in which the environmental manager, members of the community etc are invited to comment.
- Pilbara Iron newsletter "Features", publishing articles in the "Pilbara News" local newspaper
- Website http://www.pilbarairon.com/infrastructure
- Customer Charter
- Surveys and questionnaires
- Water conservation literature, water wise education in schools, a joint-venture with the Water Corporation to bring the "Garden Gurus" to the area, etc

3.10 SCHEDULE 5 – WATER SERVICES PROVISION

Conditions for water and sewer connections are available in the Dampier administration offices, and on the Pilbara Iron website. Applications are processed in Dampier. If the connection is required to a new Pilbara Iron building, then no pre-determined fees are payable. It is understood that no external request for connection has occurred to date, but this would be dealt with on the basis of a "one-off" quotation for the actual work involved.

3.11 SCHEDULE 6 – INFORMATION

3.11.1 Customer Complaints and Surveys

An annual report is completed in July each year, and provided to the ERA. In the last report (July 2006), there were 10 complaints, all were resolved. Pilbara Iron has carried out customer surveys, but there is a large staff turnover, and little response to the surveys. Pilbara Iron are not keen to carry out telephone surveys, because many residents are shift workers. The current policy is to send out a survey questionnaire with each new customer.

3.11.2 Incident Reports

Pilbara Iron is to inform the ERA within five days of events such as non-compliance with water quality (health-related) standards, wastewater overflows and other "major incidents". Incident reports are provided to the Water Services Engineer, who reports to the ERA. It is noted in this regard, that Pilbara Iron reports all spills (and overflows) under both the Rio Tinto and ERA reporting requirements. The previous audit considered that the reporting response times (to ERA) for water and waste water incidents was slow. Pilbara Iron advise that the system has been improved and reports are now provided within the 5 day period. In the current audit period, 16 reports were submitted, and 2 were reported outside the 5 day period.

A water quality incident occurred in December 2005 in relation to the testing of coliforms. No reasons were found for the problem and it was assumed to be a sampling contamination (possibly the tap had not been flamed, but this could not be confirmed).

3.11.3 Benchmarking and Performance Monitoring Information

Pilbara Iron reports annually against the Schedule 9 - Levels of Service Standards, Performance Indicators and Reporting Requirements.

3.12 SCHEDULE 7 - PRICES OR CHARGES

Prices currently reflect those set in 2000, with a tiered structure. Pilbara Iron does not closely monitor water prices, as 95% of its customers are employees, and housing and water charges are subsidised. The water and wastewater systems are not core capital ventures, with services charges intended to control usage rather than generate capital. No attempt to match income to the costs of maintaining and operating water and sewer assets is made, as the income costs are a relatively minor cost within the overall mining operations. Pilbara Iron currently does not propose a review of prices and charges.

3.13 SCHEDULE 8 - THE STANDARD AND PRINCIPLES FOR THE PROVISION OF WATER SERVICES

3.13.1 Customer Service Standards

A new emergency telephone system has been implemented as part of the customer service help desk.

3.13.2 Drinking Water System Standards

Water quality compliance has been achieved to date (noting the one unconfirmed incident in December 2005). Pressure and flow is generally good with minimum pressures of 50m-60m in Paraburdoo / Tom Price and 25m-30m in Dampier about 25m-30m. It is noted that the drinking water system continuity requirements (i.e. interruptions) have not been achieved in this audit period.

3.13.3 Drinking Water Health Directions

The Water and Wastewater Services Strategic Plan 2007 includes a commitment by PI infrastructure “to providing potable water supplies in excess of the 2004 Australian drinking water guidelines" and “to protect public health and to ensure that safe and effective water supplies and wastewater services are provided to our customers, Pilbara Iron Infrastructure is committed to complying with regulatory requirements of its water services operating licence, wastewater treatment plant operating licences, relevant legislation and regulatory and RTIO standards”.

3.14 SCHEDULE 9 - LEVELS OF SERVICE STANDARDS, PERFORMANCE INDICATORS AND REPORTING REQUIREMENTS

Some criteria will not be met in the next annual report. Pilbara Iron are conducting an ongoing programme of installing more isolating valves, so that when an interruption does occur, fewer customers are affected. In addition, proactive leakage detection and repair has required more interruptions. Hydrants did not have an isolating valve fitted (a leaking hydrant therefore required a section of main to be cut off, with attendant resident interruptions).

SECTION 4 - LICENCEE'S RESPONSE TO PREVIOUS AUDIT RECOMMENDATIONS

The auditor is required to provide an assessment of the licencee's overall response to the recommendations in the previous 2005 SMEC Australia Audit.

A tabular summary of the recommendations from the previous audit report is included in Appendix A. Pilbara Iron's responses and actions are summarised.

Some significant changes have been made in the way that the company operates. There have been no significant physical changes on the ground or to the way that the water and sewer systems are operated, but Pilbara Iron has introduced the LEAN system to improve business operations. LEAN looks to better the efficiency of all aspects of the business, and is expected to have some benefits for the water/wastewater systems, by more directly incorporating relevant KPI's as an operating tool.

The licencee's attitude towards compliance is regarded as proactive.

SECTION 5 - OPERATIONAL/PERFORMANCE AUDIT COMPLAINCE SUMMARY

5.1 COMPLIANCE KEY

For the Operational Audit, the Licencee was assessed for compliance with the Licence requirements against the following scale:

Table 2
Operational/Performance Compliance Rating Scale'

Compliance status	Rating	Description of compliance
Compliant	5	Compliant with no further action required to maintain compliance
Compliant	4	Compliant apart from minor or immaterial recommendations to improve the strength internal controls to maintain compliance
Compliant	3	Compliant with major or material recommendations to improve the strength of internal controls to maintain compliance
Non-Compliant	2	Does not meet minimum requirements
Significantly Non-Compliant	1	Significant weaknesses and/or serious action required

5.2 OPERATIONAL/PERFORMANCE AUDIT

A tabular summary of prioritised licence obligations, and Pilbara Iron's compliance with those obligations, is included in Appendix B. Detailed evaluation initiatives in place to address licence obligations are presented in Appendix C.

5.3 SUMMARY OF OPERATIONAL AUDIT FINDINGS

5.3.1 Effectiveness of Water Quality Monitoring Systems and Performance

The continued effectiveness of Pilbara Iron's systems in the provision of drinking water is evident in their performance that has continued to be compliant with respect to 'health related' characteristics since the last audit and since receiving their Licence.

Water quality compliance requires a consistent, periodic monitoring regime, together with system management processes capable of dealing with detected non-compliances. It was identified in the preliminary risk assessment that the inherent risk associated with water quality non-compliance was generally high, while weak/low adequacy of controls were identified in some of the corresponding management protocols. This assessment was based on information from the previous audit reports and preliminary documents supplied by Pilbara Iron. Consequently, the audit focused on the effectiveness of the Pilbara Iron sampling suite, data logging and response processes in place should a non-compliance be detected.

The PI *Water Quality Management Manual* (last updated December 2006) outlines the sampling and testing regime, and has been created to address Pilbara Iron's compliance with Schedule 8 of the Operating Licence.

Water Quality testing is conducted weekly (microbiology and residual chlorine), monthly (basic physical parameters), and annually (basic physical parameters, inorganic and organic chemistry and a full suite of inorganic compounds). This sampling regime covers all water quality parameters identified in the *Australian Drinking Water Guidelines* (ADWG) which are listed in the *Water Quality Management Plan* (Appendix 6), together with their respective guideline limits. Samples are transported by air (following a formalised custody chain) to a NATA approved laboratory.

The sampling regime is adequate to monitor compliance with amoeba and health-related characteristics required by the Operating Licence. Clear response flow diagrams are provided in the *Water Quality Management Manual*, outlining what actions staff must undertake to manage a potential non-compliance. The one non-compliance issue recorded (December 2005) is thought to be the result of a sampling protocol failure (flaming was not carried out on a tap, before the sample was taken). This occurred after the date by which Pilbara Iron agreed to have implemented a revised sampling procedure. Since this issue also arose in the previous audit report, it is recommended that further effort is taken to communicate and ensure sampling staff are fully knowledgeable of the new procedures clearly outlined in the manual. This may be an ongoing, periodic process due to the high turnover of staff.

Adding to this issue, sampling is undertaken by both PI staff and contractors. The audit identified clear sampling protocol instructions and training for PI staff (*Water Quality Management Manual*). Contractors who undertake sampling at Tom Price and Paraburdoo, are given training by PI house staff (who in turn have been trained by the Water Services Engineer or Specialist Water Services). The contractors were audited (February 2007) to assess the awareness of their employee's regarding PI procedures. It is recommended that key points from the training are included in the Contractor Information Pack where applicable, so that contractors can refresh their knowledge easily.

Non-health related parameters (turbidity, TDS, DO, Aluminium etc, see Appendix 6 *Water Quality Management Manual*) are also captured in the sampling regime, demonstrating capacity to comply with the non-health related water quality characteristics defined in the Operating Licence.

5.3.2 Effectiveness of Customer Services Processes and Systems

Most of Pilbara Iron's customers are employees of the company. Attractive employment conditions and customer consultation processes go hand in hand. Several new and continued initiatives to foster communication between the customer and the company were viewed. They include water conservation posters, fliers for system management improvements (e.g. The Answer to All Your Housing Question at One Address for the on-line 'One-Stop-Shop'), water conservation articles in the local newspaper (Pilbara News), regularly updated website, and water wise calendars.

In addition, town water committees meet monthly to discuss water matters. Members of the public are invited and community representatives (e.g. PI Community Affairs Dept, Shire etc) are present. Community forums are held in each town approx every 3 months, for discussion of all matters, including water supply etc.

Also, Pilbara Iron continues to distribute performance surveys to customers, although response remains poor. Phone surveys are an alternate option, with the possibility of a higher level of success, but Pilbara Iron is reluctant to adopt them due to possible problems with convenience to shift workers.

The current audit period, also saw the introduction of the new Customer Call Centre (Christmas 2006), which replaced the discontinued TeleQ call management system. The old system was abolished in early 2005, which meant that a temporary, transitional system was being used in the interim (complaints were logged manually and recorded in spreadsheets). The preliminary risk assessment assumed a high priority rating, because the shifting between systems can hinder the effectiveness of day to day operations, and sometimes even the loss of information in the transfer process. The audit found that aside from initial teething problems, the new Customer Call Centre appears to be effective in recording, tracking and progressing complaints.

5.3.3 Adequacy and Reliability of Performance Reporting Information Systems

The preliminary risk assessment identified a medium inherent risk associated with water quality system performance (leakages, low pressure) and wastewater system performance (blockages and overflows). The previous audit identified some weaknesses in the reporting systems. In this light, the current audit placed some priority on assessing the effectiveness of incident reporting, and the classification system used for spills and leakages.

The discrepancy between spill/overflow classification in the Operating License and in RTIO management systems, has been addressed, and now, all spills and overflows are reported regardless of their RTIO classification.

There has been an observable improvement in operation response times, and of the 16 incident reports provided during the audit period, 14 of them were submitted to the ERA within the 5 day period stipulated in the license.

5.4 CONCLUSION

Since the last audit in 2005, Pilbara Iron has responded positively to the recommendations made. Initiatives have been developed or implemented to address each of the previous recommendations in this audit period. Measures can be taken to improve the level of compliance for some of the issues tabled in Appendix B. These are outlined in the recommendations of this audit.

Since the 2005 audit, there has been one new area identified as high risk, which was amoeba compliance. After assessing staff and system documentation, it was concluded that PI conduct sufficient monitoring and have a clear response protocol for amoeba non-compliance to deal with the high inherent risk in this area

SECTION 6 - ASSET MANAGEMENT SYSTEM REVIEW – KEY OUTPUTS AND PERFORMANCE

5.1 EFFECTIVENESS RATING SCALE

For the Asset Management Review, an asset management adequacy matrix was used to assess the effectiveness of the Licencee's asset management system. The rating scale uses the following levels:

Table 3
Asset Management Review Effectiveness Rating Scale

Effectiveness	Rating	Description
Continuously improving	5	Continuously improving organisation capability and process effectiveness
Quantitatively controlled	4	Measurable performance goals established and monitored
Well-defined	3	Standard processes documented, performed and coordinated
Planned and tracked	2	Performance is planned, supervised, verified and tracked
Performed informally	1	Base practices are performed
Not performed	0	Not performed (indicate if not applicable)

6.2 ASSET MANAGEMENT SYSTEM REVIEW

A tabular summary of tests and an assessment of PIs effectiveness in meeting these tests is included at Appendix D.

6.3 SUMMARY OF ASSET MANAGEMENT REVIEW FINDINGS

6.3.1 Asset Planning/Creation/Acquisition/Disposal

According to the Audit Guidelines (2006), asset planning requires focus on planning strategies in meeting current and projected customer needs, and should include maintenance and replacement expenditure planning. Asset creation/acquisition requires extension of expenditure/outlays and benefits further than the current year of outlay, for a more efficient acquisition framework can lower demand and service costs, while maintaining service delivery standards. Asset disposal requires PI to incorporate consideration of alternatives for the disposal of assets.

Key Documents/Systems:

- Asset Management Improvement Plan (AMIP)
- Site Water Management Plans
- Asset Reliability Plans
- Customer Charter
- Site Operations & Maintenance Reliability Plans
- CAPS System
- Blue Sheet

This area of the asset management system is operating at an acceptable level. RTIO systems such as SAP and Capital Expenditure Applications (CEA) are inherent in the creation/acquisition, management, and disposal planning of Pilbara Iron infrastructure. SAP is a companywide database for the repair versus asset replacement decision process.

The *Asset Management Improvement Plan* (AMIP) defines strategic objectives and splits them into Health/Safety, Environment, People, Training & Development, and Asset Planning. A new initiative was to include these strategic objectives in the Customer Charter (since 2007).

Pilbara Iron sources revenue for the water sewer assets from its own general corporate revenue (alternative funding option evaluations are not required) as the water services in the towns is a small but essential component of their entire operation. Expenditure is justified using CEA (Capital Expenditure Application) submitted via the CAPS system.

Review of asset planning is undertaken through *Site Operations and Maintenance Reliability Plans* and utilise; Bluesheets, feedback, KPI reviews, audits and CEAs. The CEAs and Blue sheets evaluate life cycle costs. Information is stored in CAPS, and Project Files under the care of the Engineer from Water Services.

Processes are in place to assess reasons for poor performance via Asset Condition Reviews, Capacity Reviews, Reliability Action Plans, and the Leak Management Reviews. In general design capacity of assets has remained adequate, and the main issues are age of assets e.g. Dampier WWTP, gum tree roots in sewers, pipe leaks and burst (e.g. corrosion of steel pipe fittings) etc. Corrective measures include the leakage detection study in 2006, sewer foaming, jet cleaning, upgrade of pipes and services to prevent the high incidence of leaks and bursts occurring, etc. No assets were disposed of during the current audit.

Assessment: Quantitatively Controlled.

6.3.2 Environmental Analysis

Environmental analysis contextualizes the asset management system in relation to all relevant external factors; so that corrective action can be taken to addresses external threats and maintain performance requirements.

Key Documents/Systems:

- Site Reliability Plans (SRP)
- Significant Environmental Risk Registers (SERR)
- Iron Environmental Management Systems (IEMS)
- Site Water Management Plans

Environmental analysis of PIs asset management is driven by a risk-based process carried out in SRPs and SERRs. Statutory and regulatory obligations characterise the severity of the risks.

Assessment: Quantitatively Controlled.

6.3.3 Asset Operations and Maintenance

PI is required to document operational processes and keep up staff knowledge, such that service levels are maintained in the operation of assets.

Key Documents/Systems:

- Site Reliability Plans (SRP)
- Maintenance Plans
- Staff Training Matrix
- IPT Asset Management Professional Training Guide

Contained within SAP is the Asset Register, a sub-component that details the type, location, condition and accounting data of Pilbara Iron assets. Reliability Plans link operations to service levels, assessing their performance and prioritizing tasks based on a risk assessment. Data in the Asset Register is verified on an annual basis by Utilities Staff.

All staff involved in water service operations have their training logged in a 'Training Matrix'. At any given time it is possible to view the level of training of operations staff, determining which roles they are suitable for. Asset management training is given to selected staff based on the protocol in IPT Asset Management Professional Training Guide.

Costs are recorded in SAP under the jurisdiction of the Utilities Superintendent who also participates in the budgeting review process together with supervisors and planners.

Site Reliability Plans detail maintenance inspection procedures. Maintenance Plans are stored in SAP and are driven by engineering asset reviews undertaken for a particular component (e.g. Tom Price Sewer Capacity Review).

Assessment: Quantitatively Controlled.

6.3.4 Asset Management Information System (MIS)

MIS is a combination of processes, data, and software that support asset management functions. The review considers both day to day operations as driven and monitored by MIS, and the accuracy of the information recorded which is used as the basis of all reporting against licence requirements.

Key Documents/Systems:

- Asset Management Improvement Plan (AMIP).
- SAP.
- Staff Training Matrix.
- Iron Ore Document Management System (IODMS).
- Water Quality Data Reports.
- ERA Incident Reports.

It was identified that there is adequate documentation of system information in SAP, however, the system is currently administered by one operator. Information, used to formulate reports (annual, quarterly…) are entered and verified by this system administrator, using supporting evidence where applicable. There is a risk that changes in administration personnel could impact on MIS performance. It is recommended that an Action Plan be created to address this issue.

Efforts have been made to use broad PI management systems (e.g. IODMS) to improve access to AMIPs (Currently stored on personal drives of select individuals).

All data is backed up in hard copies and stored under the control of the engineer of Water Services.

Assessment: Well defined.

6.3.5 Risk Analysis and Contingency Planning

Risk management is assessed against service standards. Contingency plans are assessed on their ability to minimize disruptions to service standards.

Key Documents/Systems:

- IronSafe.
- Asset Management Improvement Plan (AMIP).
- Site Reliability Plans (SRP).
- Significant Environmental Risk Registers (SERR).
- Site Water Management Plans.
- Contractor Management System (CMS).
- Safe Work Procedures.
- Local Emergency Management Plans (LEMP).

Risk assessment is the underlying management tool used to manage PI assets. As such, they permeate into many aspects of the PI asset management system.

Risk management, hazard identification and risk estimation are defined and carried out under IronSafe, and the AMIP. These incorporate all risk assessment, except for contractors who are dealt with under a separate CMS. The SRP, though new, provide a framework to assess asset failure.

Contingency plans are in place for particular operational areas, and are recorded where relevant (See Appendix D).

Assessment: Quantitatively Controlled.

6.3.6 Financial Planning

Pilbara Iron is committed to provide adequate water and wastewater services within the towns, as an integral component of ongoing mining operations. The cost of the systems is relatively minor, is an essential component of the operation and will be funded from mining revenue.

Assessment: Quantitatively Controlled.

6.3.7 Capital Expenditure Plan

The RTIO CAPS system provides detailed forward estimates of capital expenditure, supported by documentation of the reasons for the decisions and evaluation of alternatives and options. Water services capital expenditure is bundled together under the Infrastructure Divisions budget (maintained by head office in Perth). The systems are major, kept updated and actioned. The performance of the project in terms of (timing, budget, quality) is monitored and linked to responsible officers.

Depending on the level of expenditure, the approvals for capital projects are driven through various levels within the organization. The Dampier WWTP ($14m) is a major (within the town water sewer system) capital project currently under consideration. If any regulatory driven capex / opex was required, it would be funded by general Pilbara Iron revenue (without effect on customers / charges etc).

Assessment: Quantitatively Controlled.

6.3.8 Review

The Asset Management System, is seen as a 'living' system which must continually grow and respond to changes in both operations and business strategies.

Key Documents/Systems:

- Asset Management Plan (AMP)
- SAP System

The AMIP was reviewed and approved by ERA in March 2005 and again in October 2006. The October review included an update to bring the plan in line with PI AMM standards. In conjunction with these, internal reviews are conducted regularly and stored in the SAP system.

Assessment: Quantitatively Controlled.

6.4 CONCLUSION

The Asset management systems are well established. Pilbara Iron is extending the life of its mining operations (and the life of 3 towns) due to strong demand for iron ore. Pilbara Iron have been reviewing asset condition and responding with action plans and works (planned works) to lessen reactive emergency work and meet all statutory KPI requirements.

The Asset Management System has reached some point of maturity, but is still a work in progress. The Asset Management Improvement Plan / Reliability Plans require completion, in particular the operations plans (Equipment Maintenance Strategies and Maintenance Work Management). Ongoing, these documents should adequately incorporate the processes and knowledge of operational staff, and be available to field staff for day-to-day running of the asset management systems for consistent service levels.

SECTION 7 - RECOMMENDATIONS

7.1 CONTRACTORS INFORMATION PACK

It is recommended that the contract information pack containing relevant information on responsibilities for consultation with residents, and information on the requirement for recording the residences that are interrupted, and the length of time, be updated to meet operating licence conditions.

7.2 REPORTING YEARS

It is recommended that Pilbara Iron consider (with ERA) an alignment of the audit timetable and the reporting timetable

7.3 CUSTOMER COMPLAINTS

It is recommended that PI continue to develop the Customer Call Centre and the associated training / scripting to ensure the accuracy of the information recorded, the fact that the information is required under statutory obligation, and to ensure the correct field staff are targeted in response to complaints.

It is recommended that PI continue to encourage field staff not to let the system be bypassed, to understand the operating licence requirement of 21 days, and to report back to the call centre as soon as possible to allow the call centre to be more effective in liaison with complainants.

7.4 CUSTOMER CONSULTATION

It is considered that Pilbara Iron carries out this function well. It is recommended that range of consultation continue, and that Pilbara Iron continues to align themselves with the State Government and Water Corporation message.

7.5 CUSTOMER COMPLAINTS AND SURVEYS

It is recommended that Pilbara Iron continues the policy of sending a survey questionnaire to each new customer, and collating and recording the results.

7.6 LEVELS OF SERVICE STANDARDS, PERFORMANCE INDICATORS AND REPORTING REQUIREMENTS

Some performance criteria will not be met in the next annual report. It is recommended that Pilbara Iron continues to be proactive in assessing and dealing with issues that prevent compliance with the operating licence.

7.7 LEAN

It is recommended that Pilbara Iron continues to utilise the LEAN board system, and encourage the use of KPI's in operational areas that directly reflect the KPI requirements of operational licence (where appropriate). Specifically, the LEAN system could compliment existing monitoring regimes for pressure, flow, leaks, bursts, blockages and overflows in the drinking water wastewater systems as appropriate.

7.8 WATER QUALITY SAMPLING

It is recommended that further effort is taken to communicate and ensure sampling staff are fully knowledgeable of the new procedures clearly outlined in the manual. This may be an ongoing, periodic process due to the high turnover of staff.

7.9 WATER QUALITY SAMPLING (CONTRACTORS)

It is recommended that key points from the Water quality training are included in the Contractor Information Pack where applicable, so that contractors can refresh their knowledge easily.

7.10 ASSET RELIABILITY PLANS

These plans are referenced in this Asset Management Improvement Plan, and are to be completed in 2007. It is recommended that the Asset Reliability Plans be completed (in conjunction with operational staff), and be driven out to field staff.

7.11 MAINTENANCE WORK MANAGEMENT

It is recommended that Equipment Maintenance Strategies and Maintenance Work Management objectives / service levels required are documented in the Asset Management Improvement Plan / Reliability Plans are completed, reviewed as required by the Plan, and linked aligned with day to day operations (Planners and SAP)

7.12 ASSET MANAGEMENT INFORMATION SYSTEM

It is recommended that the asset management information system as documented in the Asset Management Improvement Plan / Reliability Plans be completed, and be available to planners / field staff for day-to-day running of the asset management system.

APPENDIX A

RESPONSE TO 2005 RECOMMENDATION MATRIX

APPENDIX B

2007 OPERATING LICENSE RISK ASSESSMENT AND COMPLIANCE MATRIX

APPENDIX C

OPERATING LICENSE SUMMARY MATRIX

APPENDIX D

2007 ASSET MANAGEMENT COMPLIANCE MATRIX

APPENDIX E

RATINGS TABLE

APPENDIX F

SUPPORTING INFORMATION
(Attached as separate document)

APPENDIX A: RESPONSE TO 2005 RECOMMENDATIONS MATRIX

Item No.	Recommendations from the previous 2005 audit report	Action taken by the licencee to address the recommendations; and any further action needed to address issues not satisfactorily resolved
	LICENCE	
1	Information (Section 9.5.1 report) It is recommended HI review their information gathering, storage and reporting systems and procedures to align outputs with the reporting and information requirements of the Licence.	This recommendation related to the provision of one of the annual reports which was not provided to ERA on time. Process has been revised, and the 2004/05, and 2005/06 reports were delivered to ERA within the 30 day period as required by the Licence. Assessment: Closed out
2	Prices and Charges (Section 9.5.2 report) It is recommended that HI review the cost of providing services, and submit on an annual basis the proposed prices and charges for the operating year.	Prices and Charges are not under review and have not been changed since 2000. This is a low priority for PI. (Given the water subsidies by PI to employees, the difference in water bills between Dampier staff (PI system) and Karratha staff (Water Corp system) is not significant. Assessment: This is considered a PI business decision. Closed out
3	Contracting (Section 9.5.3 report) It is recommended that the HI undertake an audit of their contracted service providers to test the awareness of those contractor's employees of the requirements of HI's Water Services Licence.	Audits of Byblos were conducted in February 2007 (both at Tom Price and Paraburdoo). Assessment: Closed out. It is further recommended however that other aspects of the contractor relationship be addressed. See recommendations.
	ASSET MANAGEMENT PLAN	
4	Asset Management Plan be linked as an electronic document to the financial and CAPEX planning, SAP, the asset register and other procedures. This will help ensure that all information is continually up to date.	Plans will be linked together on the proposed new Infrastructure Intranet currently under development in 2007 (total linkage will not be possible due system variances). Assessment: Closed out. It is noted however that the asset register appears to be an accounting tool, not available to field staff as a day to day tool. Rather knowledge, drawings etc are used to define the water sewer infrastructure in the ground
5	Continue the development of SAP so that an improved understanding of financial, maintenance and resource requirements of assets is gained.	SAP development is always ongoing. Pilbara Iron advise they will be reviewing the Asset Register vs SAP data vs reliability plans to ensure all is up to date. Assessment: Closed out. Subject to ongoing recommendation
6	Undertake a comprehensive review of asset condition and valuation.	Each asset condition was reviewed at the time of compilation of the site reliability plans, and further work will be completed as per 5) above. Valuation is considered in the annual review of the asset register. Assessment: Closed out.
7	Water services capital expenditure is bundled together under the Infrastructure MRU's budget. It is easy to access this information from the financial system however this information is maintained by head office in Perth. A link between the financial aspects of the provision of water services and the asset management of the system needs to be strengthened.	Work on this link is being developed by the Pilbara Iron ABS (Aligning Business Systems) project. Assessment: Closed out.

8	An area for future attention is the need to anticipate regulatory driven capital and operating expenditure.	If any regulatory driven capex / opex was required it would be funded by general PI revenue, and there would be no effect on customers / charges etc, due to the unique nature of the business. Assessment: Closed out.
9	The development of yearly budgets from SAP will continue to enhance the overall financial performance and asset management, thus improving the overall supply of the water and sewerage services.	Annual budgets will continue to be developed in SAP. Assessment: Closed out.
10	HI use SAP as the basic tool for the operation and maintenance of their assets. Aspects of the system, particularly in relation to the water quality testing procedures are impressive. However differences in procedures were noticed between the Coastal and Inland operations. Standardisation of procedures for similar work would enable a better basis for assessing HI's operational performance.	SAP is used to plan and provide the reminders for the planned maintenance aspects of the water quality system (i.e. the PMO1's for weekly, monthly and annual water quality testing). With the new Infrastructure Division organisation, Coastal and Inland operations are under single control / no differences in procedures. Assessment: Closed out.

APPENDIX B: 2007 OPERATING LICENCE RISK ASSESSMENT & COMPLIANCE MATRIX

RISK ASSESSMENT CHECKLIST

Compliance Element	Specific Issues/Detail	Operating Licence		Conse-quence	Likelihood	Inherent Risk	Adequacy of Controls (post-audit assessment)	Audit Priority	Compliance Rating (post audit)	Recommendation (section in report)
		Schedule	Clause							
CUSTOMER COMPLAINTS										
Register of Complaints	Is the register maintained such that each complaint is dealt with on an individual basis?	*2*	*1.1*	2	C	Medium	Moderate	4	3	7.3
Complaint Officers	Do officers have sufficient training, and do they have the authority to make decisions leading to complaint resolution?	*2*	*1.2*	2	C	Medium	Strong	4	4	7.3
Resolution	Were complaints dealt with within 21 days?	*2*	*1.2*	1	B	Low	Strong	5	3	
Arbitration	Was the complainant informed of their appeal options and arbitration through the Office of Water Policy if the 21 day timeframe has or looks like it will expire?	*2*	*1.3*	1	C	Low	Strong	5	N/A	
CUSTOMER CHARTER & SERVICE										
Identify services provided	Has HI identified all potable and sewerage services under their responsibility?	*3*	*1,2*	2	C	Medium	Strong	4	4	
Charter installed, reviewed and followed		*3*	*1,2*	2	B	Medium	Strong	4	4	7.4
Update customers	Has HI defined and updated customer segments and populations using water and sewer services ?	*3*	*1,2*	2	C	Medium	Strong	4	4	
Identify service standards	Has HI identified all the required service parameters in order to meet their charter and Operating Licence?	*3*	*3*	2	C	Medium	Strong	4	4	7.1
90% compliance with all standards (i.e. service obligations)		*3,8*	*3,1*	2	C	Medium	Strong	4	4	7.6 / 7.7
Communicate agreed standards (poster)	Are the standards set by the Authority displayed prominently in the licencees offices?	*3*	*4-11*	1	C	Low	Strong	5	4	
Communicate agreed standards (i.e. service obligations) (free copy every 2yrs & on request)	Are the standards set by the Authority mailed to all customers annually, and additional free copies (or an approved summary document) made available upon request?	*3*	*4-11*	1	B	Low	Strong	5	5	
Emergency phone line	Is a phone line set up for reporting emergencies, and are customers informed of plans for resolution within 1 hour of receiving the call?			2	B	Medium	Strong	4	4	7.3
Customer - HI agreement documented	Is there documentation for terms of agreement between customers and HI?	*8*	*4.1,4.2*	2	C	Medium	Strong	4	N/A	
Annual notification & documented Customer Agreement for non-compliant water supply	Where approved by ERA, is documentation and clear communication of terms between HI and customers for water supply that does not meet compliance standards for water quality, flow, pressure, price (e.g. non-potable supply)	*8*	*4.1,4.2*	2	B	Medium	Strong	4	N/A	
Service Connection Provision	Is there documentation for conditions of connection for all customers?	*5*	*1*	1	B	Low	Strong	5	4	
CUSTOMER CONSULTATION										
Ongoing consultation (meetings and newsletter)	Is there an established and ongoing customer consultation process which includes periodic meetings and a newsletter as the bare minimum?	*4*		1	B	Low	Strong	5	4	7.4
Customer Survey	Was there an independent customer survey not less than once every 12 months	*6*	*2.2*	1	B	Low	Strong	5	4	7.5
Public notification	Were all affected customers notified of disruptions due to planned & emergency disruptions to normal operation?	*4,6*		2	C	Medium	Strong	4	4	7.1
DRINKING WATER GUIDELINES & STANDARDS										
Water Quality	Is the water safe for human consumption?	*8*	*2.1*	3	B	High	Strong	2	4	7.8 / 7.9
Pressure & flow requirements	Is static pressure min head 13m, max head 100m; and flow min 20L/s maintained for 99.8% customers every year?	*8*	*2.3*	2	B	Medium	Strong	4	5	7.6 / 7.7
Interruptions / Continuity	75% of the customers shall not experience a complete interruption of supply exceeding 1hr?	*8*	*2.4*	2	B	Medium	Moderate	4	2	7.6 / 7.7
Continuity	no customer is to experience more than 3 complete interruptions per year?	*8*	*2.4*	2	B	Medium	Moderate	4	4	7.6 / 7.7
Drinking Water Leaks	Fewer than 20 leaks per 100km of pipe?	*8*	*2*	2	B	Medium	Moderate	4	2	7.6 / 7.7

Health Related Compliance	Has the drinking water supply complied with guidelines as defined in *Guidelines for Drinking Water Quality* 1987?	*8*	*3.1*	3	C	High	Strong	2	4	7.8
Non-Health Related Compliance - with suggested guidelines	Is there evidence that HI has endeavoured to meet non health related characteristics of the Guidelines, as far as practicable	*8*	*3.1*	2	B	Medium	Strong	4	4	7.6 / 7.7
Amoebae compliance	Were there efforts to minimise the presence of amoebae in drinking water services, such that no sample should contain any Naegleria species which can tolerate temperatures greater than 42deg C for no less than 95% of the time?	*8*	*3.2*	3	B	High	Strong	2	4	7.8
SEWERAGE GUIDELINES & STANDARDS										
Overflows	Did HI make every endeavour to ensure that 90% of services don't experience overflows as a result of HI sewerage asset failures or mismanagement?			2	B	Medium	Strong	4	4	7.6 / 7.7
Blockages	Were sewer blockages limited to fewer than 4 per 10km , and were these blockages tracked, resolved and reported according to set standards?			2	B	Medium	Moderate	4	3	7.6 / 7.7
REPORTING - INFO PROVIDED TO ERA										
Customer Complaints	12 monthly	*6*	*2.1*	2	C	Medium	Moderate	4	5	
Quarterly reports	3 monthly	*8*		2	C	Medium	Strong	4	5	
Annual Benchmarking Report	12 months	*6*	*4*	2	C	Medium	Strong	4	5	
Incident Reports within 5 days	5 days	*6*	*3.1*	2	C	Medium	Strong	4	3	7.6

* It should be noted that audit priorities are first assessed at the start of the audit, and are then revised after the site visit and a review of documentation. Priorities given in Appendix B are those reflecting priorities after re-evaluating adequacy of system controls, in order to inform priorities for future audits.

APPENDIX C: OPERATING LICENCE SUMMARY MATRIX

It should be noted that audit priorities are first assessed at the start of the audit, and are then revised after the site visit and a review of documentation. Priorities given in Appendix C are those reflecting preliminary assessment of priorities based on initial assessment of adequacy of controls.

PRIORITY 1

Clause/Sched.	Licence Obligation	HI system/initiatives	Compliance Scale
Schedule 8 Sect.3.2	*"In accordance with the August 1997 decision of the Advisory Committee for the Purity of Water the licensee is to operate its water supply systems such that the presence of amoebae is minimised so that no sample should contain any Naegleria species tolerant to 42 degrees celcius and above, and to achieve an annual compliance of not less than 95%".*	Over the audit period, there were no non-compliances recorded. Samples are taken weekly, and all data is reviewed by Engineer Water Services and Supervisors, who have been assigned responsibility to ensure action is taken regarding non-compliance. Sampling protocol is outlined in the Water Quality Management Manual, which is produced by HI and has been updated twice per year since its introduction in 2005. The Water Quality Management Manual (Appendix 5) outlines the Amoeba response protocol, should a non-compliance related to Naegleria be recorded. The protocol details the steps required from finding a non-compliance up until water quality returns to acceptable standards, including ; disinfection measures, further testing requirements, required reporting (to Department of Health), JACP (Joint Action Committee Plan) meetings, public announcement warnings.	4

PRIORITY 2

Clause/Sched.	Licence Obligation	HI system/initiatives	Compliance Scale
Schedule 8 Sect. 2.1 Sect. 3.1	*"The licensee is required to supply water, designated as drinking water that is safe for human consumption and which complies with the directions made from time to time by the Minister of Health…"* *"That all public water supply agencies should aim to comply, as far as practicable, with the Guidelines for 'not health related ' characteristics as set out in the*	Pilbara Iron have adopted the 2004 Australian Drinking Water Guidelines (ADWG). An internal audit considered the health and non-health characteristics stipulated in ADWG, to complete their Water Quality Management Plan / incorporation into the Operational System. Water Quality testing is conducted weekly (microbiology and residual chlorine), monthly (microbiology, basic physical parameters), and annually (microbiology, basic physical parameters, and a full suite of inorganic compounds). This	4

	document."	sampling regime covers all water quality parameters identified in ADWG and are listed in the Water Quality Management Plan (Appendix 6), together with their respective guideline limits. Samples are transported by air (following a formalised custody chain) to a NATA approved laboratory. This plan together with WQ Data sheets, which process and store periodic monitoring data, are used by Engineer Water Services for internal assessment of PI's WQ performance and to compile quarterly reports. Non-health related parameters (turbidity, TDS, DO, Aluminium etc, see Appendix 6 Water Quality Management Manual) are also captured in the sampling regime.	

PRIORITY 3

Clause/Sched.	Licence Obligation	HI system/initiatives	Compliance Scale
Schedule 8 Sect. 4.1,4.2	*4.1: "A water supply service not meeting the standards in this schedule may be supplied at a quality, pressure, flow, continuity, or price as agreed and documented between a customer and the licensee."* 4.2: *"Where water supplied does not conform with the water quality standards…and it is to be used for human consumption… Customers are to be provided with annual written notification to this effect at the time accounts are issued, and new consumers or owners or their agent are to be informed that the new consumers or owners have this responsibility at the time the Licensee being advised of a change of consumer or owner."*	During the current audit period HI does not have any non-compliance water service agreements.	N/A
Schedule 8 Sect. 5	*"…the Licensee shall make every endeavour to ensure that over each subsequent 12 month period at least 90% of services will not experience a wastewater overflow which results from any failure of sewerage assets owned or operated by the licensee."*	PI provides their own category of spills and operate by their own standards, which exceed license overflow requirements. These categories of overflow severity (CAT1/CAT2) differ from the definition of overflow in the license. However, PI have taken measures to ensure that all spills and overflows are reported, regardless of their PI category. Monitoring indicates that during the audit period (up to April 2007) PI achieved 99.8% of services not experiencing a wastewater overflow, which exceeds the licence requirements.	4

		In addition, the PI strategic plan states "*To protect public health and to ensure that safe and effective water supplies and wastewater services are provided to our customers… PI Infrastructure is committed to complying with regulatory requirements of its water services operating licence, wastewater treatment plant operating licences, relevant legislation and regulatory and RTIO standards*".	
Schedule 8 Sect. 5 & Schedule 9	*"Sewer blockages are minimised* [fewer than 4 blockages per 10km].	Waste water blockages to 10 km of sewer, must be less than four in the preceding 12 months. HI utilise a Sewer Reliability Action Plan, currently under progress, to asses whether overflow requirements are met. Across the three towns, PI is averaging 3.5 blockages per 10km of sewer so far in the 2006/2007 reporting period. In the 2005/2006 period the overall average was 6.9 blockages per 10km. This is largely due to aged property service connection to sewers, and debris which customers are introducing into the sewer through their toilets and sinks. PI monitor the sewer blockage KPI, to assess current blockage performance. PI has a public awareness campaign highlighting the consequences of households flushing refuse down their toilets. Since, the last audit PI have reviewed and modified their report and data collection form, which deals with blockage recording. During the previous auditing period maintenance works (foaming, jet drilling etc) caused significant disruption to some sewer services. The works have finished. The works found that root structures of gum trees, planted in the town during foundation, are causing damage to VC sewer pipes. Plans are underway to remediate this problem.	3
Schedule 6 Sect. 2.1	*"…the Licensee shall provide the Authority with a report at the end of each twelve month period…These reports shall contain the following information:… names and addresses of the persons who have made complaints…The nature of the complaint…Whether the complaint was successfully resolved by the Licensee within 21 days…Whether the complaint was not resolved…If the complaint was resolved, how it was resolved…If the complaint was not resolved, what further actions (if any) were known to have been pursued by the customer."*	Annual reports are completed in July each year and have been submitted to the ERA as required in the license. In the interim period, before the Customer Call Centre comes on line, all customer complaints recorded by the transitional system were successfully reported in the annual report for the respective year.	5
Schedule 8 Sect.2.2	*"On a quarterly basis the licensee will provide reports on the health related quality as prescribed by the Environmental Health Service of the Health*	Health reports have been provided on a quarterly basis.	5

	Department of Western Australia…"		
Schedule 2/Sect. 1.1 & 1.2	*"By 1 January 2002, the licensee shall have in place, and properly resourced, a process for effectively receiving, recording, managing and (if possible) resolving customer complaints within a time frame of 21 days."* *"…the licensee shall, as a minimum, establish a complaint resolution protocol which is designed to resolve the customer's complaint or dispute within 21 days of being notified of its existence."*	The new Customer Call Centre is on-line. The software (the "HP" system) includes a scripting system that leads operators through various questions and steps. The system records calls and e-mails, issues each with a unique identifying number and provides a trackable history. Relevant information is sent through to field staff, and this is followed up with reminders. The system is able to report on outstanding issues. There are changing priorities as the request progresses through the system. The Call Centre is thus able to receive, record, and manage customer complaints, and endeavors to do this within a time frame of 21 days for water and sewer matters. Some initial problems are apparent. For example; some of the scripting needs to be reviewed; some field requests are misdirected; a lack of follow-up from the field staff limits the effectiveness of operators in respect to actual progress in the field and advise back to customers; and the system is still being bypassed at times (whereby employees gain direct access to maintenance personnel). It is understood that this last problem will be rectified to some extent, by issuing new (non-public) mobile phone numbers to maintenance staff). The other problems mentioned above are generally not the product of the new system itself, and are expected to wane as staff gains familiarity with the new protocols. It is recommended that these items be specifically addressed in training and inductions given to staff, as a license compliance issue.	3
Schedule 6 / Sect. 3.1	*"The Licensee shall inform the Authority of the occurrence of the following events within five days of the Licensee becoming aware of the following incidents:* *(a) Non-compliance with water quality (health related) standards – Authority to be informed of characteristics of rolling year non-compliance, number of services affected and action to be taken by the Licensee to comply; and* *(b) Overflows from wastewater/sewerage infrastructure, including wastewater treatment plants, pumping stations, etc – Authority to be informed of the nature of incidents and action to be taken by the Licensee to rectify.* *(c) Other major incidents that have a significant impact on the delivery of water or sewerage services.*	All spills (not just 'CAT2' spills) together with other incidents are reported to Engineer Water Services and are used to create the Annual Report. Annual Reports have been compiled by Engineer Water Services and submitted to the ERA. The previous audit suggested that Pilbara Iron "needs to quickly review its systems and procedures so that reportable incidents are relayed to the Authority in a timely manner". Pilbara Iron advise that the system has been improved and reports are now provided within the 5 day period. Of the 16 reports submitted in the audit period, only 2 were reported outside the 5 day period.	3

PRIORITY 3 (with Compliance Rating < 3)

Clause/Sched.	Licence Obligation	HI system/initiatives	Compliance Scale
Schedule 8/Sect. 2.4	*"…the Licensee shall make every endeavour to ensure that over each subsequent 12 month period at least 75% of connected services shall not experience a complete interruption of supply (no flow) exceeding one hour, and no connected service shall have more than three interruptions which exceed one hour in any one year."*	PI remains noncompliant with this schedule item, with 48.7% of customers not experiencing an interruption greater than one hour during 2005/2006. In the 2006/2007 period ending April 2007 only 4% of customers have not experienced an interruption, because of some major repairs works currently being undertaken. (For instance, an entire town outage was undertaken for Paraburdoo to repair multiple leaks, and a similar scale outage is planned for Tom Price to install additional isolation valves.) This issue was brought to PIs attention in previous audits, and it is evident that PI is working toward meeting this performance target, the 2005/2006 figure is a marked improvement on the 2003/2004 figure of only 21.7%. The majority of these interruptions can be attributed to the Dampier system. Works are continuing to install additional valves in Dampier minimise the number of properties affected during maintenance/upgrade works. It is noted that both Paraburdoo and Tom Price achieved compliance for service continuity during 2005/2006. In the current reporting period (2006/2007), most of the outages are the result of planned maintenance work, and fits into the longer term PI strategy to ensure the integrity of it's water supply assets for the next 30 years. Consequently is expected that, PI will not attain compliance for any of the three towns in the 2006/2007 period.	2
Schedule 9	The Licensee is expected to minimise leaks and bursts to fewer than 20 per 10km of water main.	Since 2003 PI continues to be non-compliant with this schedule item. So far in the 2006/2007 reporting period there are on average 38.7 leaks/bursts per 100km. Infrastructure repair strategies are under progress in all three towns. It is noted that Dampier consistently has more than four times the number of leaks/bursts than either Paraburdoo or Tom Price, and efforts should be weighted appropriately. PI have undertaken a leakage location review. Works are schedules as a 5 year program (from Oct 2005), at the three towns.	2

APPENDIX D: ASSET MANAGEMENT MATRIX

ITEM NO	TEST	Comments	Effectiveness
	Asset planning		
	Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price). OUTCOME: Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential		
1	Have strategic objectives for assets been identified?	PI defines strategic objectives in the Asset Management Improvement Plan, Customer Charter and the Water and Wastewater Services Strategic Plan (what is that?). The Asset Management Improvement Plan (p5-18) splits strategic objectives into: Health/Safety, Environment, People, Training & Development, Asset Planning. It outlines a timeline with progress update matrix of required actions to achieve strategic objectives, including completion date. Strategic objectives have been included in Customer Charter for the first time in 2007. In this regard, it can be noted that the decision has been made that the assets need to last another 30 years, in conjunction with the fact that at this stage there is no plan to physically expand the towns.	5
2	Have lifecycle costs of owning and operating assets been assessed?	The whole water and sewer network consists of basic infrastructure, setup 35 years ago, and which has basically remained unchanged till this time. There are no plans at this time for any significant changes to the current systems, other than the cost of replacement. One major possibility at this stage is the Dampier WWTP, which has been evaluated on the basis of lifecycle costs of owning and operating.	3
3	Have funding options been evaluated?	Funding of projects, operations, and maintenance is from PI general revenue. The water and sewer infrastructure is a minor, but necessary cost, within the overall costs of PI's mining operations. Funding is managed by RTIO Perth.	4
4	Have costs been justified and cost drivers identified?	The drivers are to meet Operating Licence conditions and provide adequate water/wastewater services necessary to support mine personnel and operations. Operating costs are based on "zero based budgeting" (each year starts anew in terms of funding/budgets). All capital costs are justified via PI's system of proposing, justifying and evaluating capital projects (the CEA capital expenditure applications, which if approved to become part of the CAPS system.	4
5	Have likelihood and consequences of asset failure been predicted?	refer Asset Management Improvement Plan: Water and Wastewater Services 2007 – 2008. To increase its levels of reliability, Asset Reliability Plans are to be developed for each operating areas. To be completed by mid-2007.	3
6	Have plans been regularly reviewed and updated / need for new assets identified?	SITE OPERATIONS AND MAINTENANCE (RELIABILITY) Plans have been developed for each town's water and sewer systems (completed in January 2007), with intention of annual review. The need for new assets is identified by following user/operations feedback, improvement ideas sheet, maintainer feedback, management assessment, KPI Reviews, Licence Reviews, Audits, Bluesheets, CEAs (Capital Expenditure Applications)	3

ITEM NO	TEST	Comments	Effectiveness
	Asset creation/acquisition.		
	Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay. OUTCOME: A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.		
7	Have full project evaluations been undertaken for new assets, including comparative assessment of non-asset solutions?	Project evaluation undertaken in the Bluesheet (first development sheet) and the Capital Expenditure Plans for proposed capital projects. The evaluations are recorded in the CAPS System. Non-assets/alternative solutions are considered where appropriate. The CEA system is PI's system of proposing, justifying and evaluating capital projects. The Utilities Network Superintendent assesses lifecycle costs as part of Operating Budget (targeting maintenance towards long-term minimization of maintenance.	4
8	Did evaluations include all life-cycle costs?	The Blue sheet and the CEA approval/review process evaluates life cycle costs at the application for funding stage.	4
9	Did projects reflect sound engineering and business decisions?	The CEA approval/review process ensures sound engineering and business decisions. CEA and business analysis papers are stored in CAPS.	4
10	Were commissioning tests documented and completed?	Commissioning tests for new projects / assets are documented and stored in Project Files	4
11	Were ongoing legal/environmental/safety obligations of the asset owner assigned and understood?	The Asset Management Improvement Plan & Site Water Management Plans identify legal/environmental/safety obligations.	3
			4
	Asset disposal.		
	Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets. OUTCOME: Alternatives are evaluated in cost-benefit terms. Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower		
12	Were under-utilised and under-performing assets identified as part of a regular systematic review process?	Systems were developed based on constant demand, due to mine operational requirements. As such, no assets are under-utilized. Underperforming assets have been identified by several review processes	4
13	Were the reasons for under-utilisation or poor performance critically examined with corrective action or disposal undertaken?	Processes are in place to assess reasons for poor performance via Asset Condition Reviews, capacity reviews, reliability action plans, leak management reviews. In general design capacity of assets has remained suitable, and the main issues are age of assets erg Dampier WWTP, gum tree roots in sewers, pipe leaks and burst (erg corrosion of steel pipe fittings) etc. Corrective measures include the leakage detective study in 2006, sewer foaming, jet cleaning, upgrade pipes and services to prevent the high incidence of leaks and bursts occurring	4
14	Were disposal alternatives evaluated?	The RTIO CEA process has a framework to consider disposal options, but no major assets were disposed of in the review period.	4

ITEM NO	TEST	Comments	Effectiveness
15	Is there a replacement system for assets?	A replacement strategy has been developed covering 2006-2015 (WHERE). This strategy forms the basis of the water and wastewater assets in the Capital Plan	3
	Environmental analysis.		
	Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system. OUTCOME: The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements.		
16	Were opportunities and threats in the system environment assessed?	Risk assessments have been carried out in the Site Reliability Plans, and other PI environmental systems (Significant Environmental Risk Registers (SERR), and IEMS Iron Environmental Management System). These are then used to inform Site Water Management Plans. Opportunities and threats are also described in Site Water Management Plans. Examples include using mine dewatering water for the town supply, to reduce the load on the town bore fields, and WHAT IS THE Threat	4
17	Were performance standards (availability of service, capacity, continuity, emergency response, etc) measured and achieved?	Performance standards are defined in the Operating Licence and are described in the asset management manual.	4
18	Has compliance with statutory and regulatory requirements been achieved?	Compliance with statutory and regulatory requirements has not been entirely achieved, but continuing action is improving the situation. Reporting against water quality standards is done by quarterly water quality compliance reporting to ERA/Health Department. Chlorine gas use and storage is internally audited and actions regular actions placed in SAP. An annual report to ERA documents licence compliance, while environmental reporting is undertaking internally within the IEMS.	4
19	Were customer service levels achieved?	PI is not currently meeting all customer service level targets. Reporting on customer service levels is undertaken in an annual report to ERA. (note that PI is not currently meeting all targets). A new customer service system has recently been implemented, and is currently in a transition phase, however the complaints register, and response times are compliant	4
	Asset operations.		
	Operations functions relate to the day-to-day running of assets and directly affect service levels and costs. OUTCOME: Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.		
20	Were operational policies and procedures documented and linked to service levels required?	Reliability Plans document and link operational procedures/policies to service levels. Is the knowledge passed onto the staff so that service levels can be consistently achieved.	3
21	Was risk management applied to prioritise operations tasks?	Reliability Plans prioritise tasks based on risk assessments carried out within the plan DO THEY (other risk assessment are required by Pilbara Iron's other systems such as SERR and IEMS ?? TAREK	3
22	Were assets documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data?	Such detail is contained within the Asset Register, which is a continually updated sub-component of the Asset Management System (within SAP). Hwoever this register is mainly a taxation / accounting system.	4

ITEM NO	TEST	Comments	Effectiveness
23	Were operational costs measured and monitored?	SAP (under responsibilities of Utilities Superintendent) records operating costs, for review by Utilities Superintendent, Supervisors & Planners. Zero based budgeting is usded to (re)set proirties each year, all opex is charged to cost centres. SAP is used for budget control.	4
24	Did staff receive training commensurate with their responsibilities/	A "Training Matrix" in place to identify / record all training undertaken by staff. Staff receive training in chlorine awareness, confined space awareness, environmental awareness and health issues. Asset management training has been implemented for selected staff and will take place in 2007 (in accordance with the IPT Asset Management Professional Development Guide).	4
	Asset maintenance		
	Maintenance functions relate to the upkeep of assets and directly affect service levels and costs. OUTCOME: Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost. Maintenance policies and procedures are documented and linked to service levels required		
25	Were regular inspections undertaken of asset performance and condition?	Maintenance inspections are carried out at regular intervals and a detailed in Site Reliability Plans. Inspection data is logged in relevant files (e.g.. backflow prevention device checks, cathodic protection reports, CCTV, sewer foaming, etc)	4
26	Were maintenance plans (emergency, corrective and preventative) documented and completed on schedule?	Maintenance Plans for regular inspections and work are entered into SAP, orders for work rasied and cost/budgets cebtres initauated.	4
27	Were failures analyzed and operational/maintenance plans adjusted where necessary?	Engineering asset reviews are undertaken, and maintenance plans adjusted as necessary. Examples include the Dampier sewer system review, and the Tom Price sewer capacity review, Which led to an amended sewer cleaning frequency and maintenance program	4
	Asset Management Information System (MIS)		
	An asset management information system is a combination of processes, data and software that support the asset management functions. OUTCOME: The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.		
28	Was adequate system documentation provided for users and IT operators?	SAP / Asset Register access / administration controls are dependant on an individuals access rights within Pilbara Iron system. Currently the Asset Management Improvement Plan / Reliability plans are administered only by the Water Services Engineer.	3
29	Did input controls include appropriate verification and validation of data entered into the system?	Data in the Asset Register is verified on an annual basis by Utilities staff. Data and information used to formulate the annual reports to ERA, and the Water quality reports are entered and verified by the system administrator, using supporting evidence from reports where appropriate.	3
30	Were logical security access controls adequate, such as passwords?	SAP access / administration controls are dependant on an individuals access rights within Pilbara Iron. The Asset Management Improvement Plan is currently saved "locally" and will soon migrate such documents to secure IODMS (Iron Ore Document Management System), infrastructure Internet, and Infrastructure IEMS.	3
31	Did physical security access controls appear adequate?	Documents saved in the Infrastructure Drive (plus local copies) include Asset Management Improvement Plan, Water quality data and reports, ERA incident reports, operating data for compilation of annual reports to ERA. Individual asset data is stored in SAP/Asset Register. Master electronic documents are currently saved in the personal drive.	3

ITEM NO	TEST	Comments	Effectiveness
32	Did data backup procedures appear adequate?	Electronic backup systems and all relevant data is filed in hard copy form	3
33	Were key computations related to licensee performance reporting materially accurate?	Supporting evidence for reports is provided by operations staff and from water quality test data, and from the Utilities Networks Outage Database	4
34	Were management reports adequate for the licensee to monitor license obligations?	Reports are structured to allow monitoring of licence obligations, compilation of KPI's appears adequate.	4
	Risk management		
	Risk management involves the identification of risks and their management within an acceptable level of risk. OUTCOME: An effective risk management framework is applied to manage risks related to the maintenance of service standards.		
35	Do risk management policies and procedures exist and are they being applied to minimise internal and external risks associated with the asset management system?	Risk Management policies are defined in IronSafe. Hazard Identification and Risk Estimation are contained in the Asset Management Improvement Plan / Site Reliability Plans, Site Water Management Plans. Risk Assessments are carried out in CMS Contractor Management System – for management of all contractors who work on PI sites (incl towns). Risk Registers are contained in IEMS (ERR and SERR) and Site Water Management Plans. Iron Safe identifies projects that require specific Hazard Studies. Safe Work Procedure is used to prevent accidents, and damage to equipment & environment.	4
36	Are risks being documented in a risk register and treatment plans being actioned and monitored?	External risk assessment was carried out in 2001, and recommendations have been implemented. I sighted this. Risk Registers are contained in IEMS (ERR and SERR) and Site Water Management Plans.	4
37	Are the probability and consequences of asset failure regularly assessed?	Assessment is carried out in the Site Reliability Plans. Failure assessment has only been conducted once, because the Site Reliability Plan is a new initiative.	4
	Contingency planning		
	Contingency plans document the steps to deal with the unexpected failure of an asset. OUTCOME: Contingency plans have been developed and tested to minimise any significant disruptions to service standards.		
39	Are contingency plans documented, understood and tested to confirm their operability and to cover higher risks?	Contingency plans are in place and focus on particular areas: Well Field Operation Strategies, Spill Response Plans (IEMS), Asset Failure Contingencies (Site Reliability Plan), Emergency Response planning (Local Emergency Management Plans LEMP)	4
	Financial planning		
	The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term. OUTCOME: A financial plan that is reliable and provides for the long-term financial viability of the services.		
40	Does the financial plan state the financial objectives and strategies and actions to achieve the objectives?	As an ongoing part of major mining operations, Pilbara Iron will ensure that water and sewerage services (provision of housing and town infrastructure in general) remain adequate and funded as an integral part and cost of their mining operations.	4
41	Does the financial plan identify the source of funds for capital expenditure and recurrent costs?	Financial details for water/wastewater services are included in overall Infrastructure Financial Planning, which identify Mine Revenue as funding source for Capital expenditure	4
42	Does the financial plan provide projections of operating statements (profit and loss) and statement of financial position (balance sheets)?	Yes	4

Asset Management System Review (Dampier, Paraburdoo and Tom Price)

ITEM NO	TEST	Comments	Effectiveness
43	Does the financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period?	Yes	4
44	Does the financial plan provide for the operations and maintenance, administration and capital expenditure requirements of the services?	Yes	4
45	Have significant variances in actual/budget income and expenses been identified and corrective action taken where necessary?	Significant variances are met on an "as required basis	4

ITEM NO	TEST	Comments	Effectiveness
	Capital expenditure planning		
	The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates. OUTCOME: A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.		4
46	Is there a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates?	Capital expenditure plan is the Pilbara Iron CAPS system that covers all these issues.	4
47	Does the plan provide reasons for capital expenditure and timing of expenditure?	The CAPS system inlcudes detailed justifcations, apporvals and timing of expenditure?	4
48	Is the capital expenditure plan consistent with the asset life and condition identified in the asset management plan?	The capital expenditure plan is based (mainly) on repalcment of underperfiming asetts, as idnetified.	4
49	Is there an adequate process to ensure that the capital expenditure plan is regularly updated and actioned?	The CAPS system ensures that the capital expenditure plan is regularly updated and actioned, and is linked to responsible project offciers	4
	Review of AMS		
50	Is the asset management system regularly reviewed and updated?	The AMP was reviewed in March 2005, & approved by ERA (used for 2005 audit). An AMP review and update to Pilbara Iron AMM standards (March-September 2006) was approved by ERA in October 2006	
51	Has the Asset Management System been reviewed to ensure the effectiveness of the integration of its components and their currency?	The AMP was reviewed and updated to PI Asset Management Manual standards in 2006.	4
52	Is a review process in place to ensure that the asset management plan and the asset management system described therein are kept current?	A regular review of the AMIP is undertaken (and i9nlcdued as an item intn he SAP system.	4
53	Have independent reviews (e.g. internal audit) been performed of the asset management system?	The 2005 AMP plan was reviewed by the Utilities Manager in March 2005. The 2006 AMP was reviewed & approved by Infrastructure staff, and by PI Asset Management & Infrastructure Engineering Managers	4

APPENDIX E: RATINGS TABLES

The *Audit Guidelines: Electricity, Gas And Water Licences 2006* gives clear criteria and instructions for the risk assessment process. Risk is associated with the ramifications of non-compliance with any conditions of the licence or any additional standards or agreements made between stakeholders and HI.

A five point rating scale is used to assess the level of compliance of operations (Table 1). A compliance rating of 5 indicates a well managed operational process. Ratings of 3-4 acknowledge satisfactory performance, but will entail some recommendations for system improvement. A Rating of 1-2 indicates non-compliance.

Table 1 Types of Compliance Risk (ERA, 2006)

Compliance status	Rating	Description of compliance
COMPLIANT	5	Compliant with no further action required to maintain compliance
COMPLIANT	4	Compliant apart from minor or immaterial recommendations to improve the strength internal controls to maintain compliance
COMPLIANT	3	Compliant with major or material recommendations to improve the strength of internal controls to maintain compliance
NON-COMPLIANT	2	Does not meet minimum requirements
SIGNIFICANTLY NON-COMPLIANT	1	Significant weaknesses and/or serious action required

The type of non-compliance influences the nature of risk. Table 2 outlines four types of non-compliance which will be used in the audit to differentiate between the severity of non-compliance events.

Table 2 Operational Compliance Rating Scale (ERA, 2006)

Type of Risk	Examples
Non-compliance with supply quality	Public health and safety issues, quality not fit-for-purpose.
Non-compliance with supply reliability	Delays in new connections, disruptions to supplies, insufficient supplies.
Non-compliance with consumer protection	Customer service levels not met, higher prices charged.
Non-compliance with legislation/licence	Breach of industry Acts and regulations, other licence conditions not met eg. performance reporting to the Authority.

A three point rating scale is then used to quantify the consequences of the non-compliance.

1 Minor
2 Moderate
3 Major

Considerations used to determine consequence are threat to health and livelihood, restriction to services, duration of non-compliance, customer complaints, financial burdens incurred by customers and re-occurrence of non-compliance events. In general, it is suggested that the consequences of supply quality and reliability are rated higher than consumer protection issues and breaches of reporting protocol.

The likelihood of this non-compliance is then determined for the risk analysis checklist using criteria in Table 3.

Table 3 Likelihood Ratings (ERA, 2006)

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

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The above information is then used to give an inherent risk rating for the non-compliance event (Table 4). This risk rating also conforms to a three point scale (High, Medium, Low) as defined in Table 5.

Table 4 Inherent Risk Rating (ERA, 2006)

Likelihood	Consequence		
	1. Minor	2. Moderate	3. Major
A. Likely	Medium	High	High
B. Probable	Low	Medium	High
C. Unlikely	Low	Medium	High

Table 5 Description of Inherent Risk Rating (ERA, 2006)

Level	Description
High	Likely to cause major damage, disruption or breach of licence obligations
Medium	Unlikely to cause major damage but may threaten the efficiency and effectiveness of service
Low	Unlikely to occur and consequences are relatively minor

HI has the potential to influence both the likelihood and scale of consequence for a potential non-compliance through their operational management process. In this regard, and to encourage a pro-active approach to risk-management, strategies developed and utilised by HI to minimise risk will also be assessed according to the three point scale of Table 6.

Table 6 Adequacy ratings for Existing Controls (ERA, 2006)

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

The inherent risk and the adequacy of controls are then used to identify the areas of priority on a scale of 1 – 4. (Table 6)

Table 7 Assessment and Audit Priority (ERA, 2006)

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

The asset management system is evaluated using a separate table, presented below.

Table 8 Asset Management Review Effectiveness Rating Scale (ERA, 2006)

Effectiveness	Rating	Description
Continuously improving	5	Continuously improving organisation capability and process effectiveness
Quantitatively controlled	4	Measurable performance goals established and monitored
Well-defined	3	Standard processes documented, performed and coordinated
Planned and tracked	2	Performance is planned, supervised, verified and tracked
Performed informally	1	Base practices are performed
Not performed	0	Not performed (indicate if not applicable)